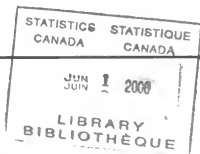




Catalogue no. 92F0029XDE, 92F0030XDE and 92F0032XDE to 92F0040XDE

# Digital Boundary Files and Digital Cartographic Files 1996 Census

Reference Guide



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Statistics Canada

# Digital Boundary File and Digital Cartographic File

Reference Guide

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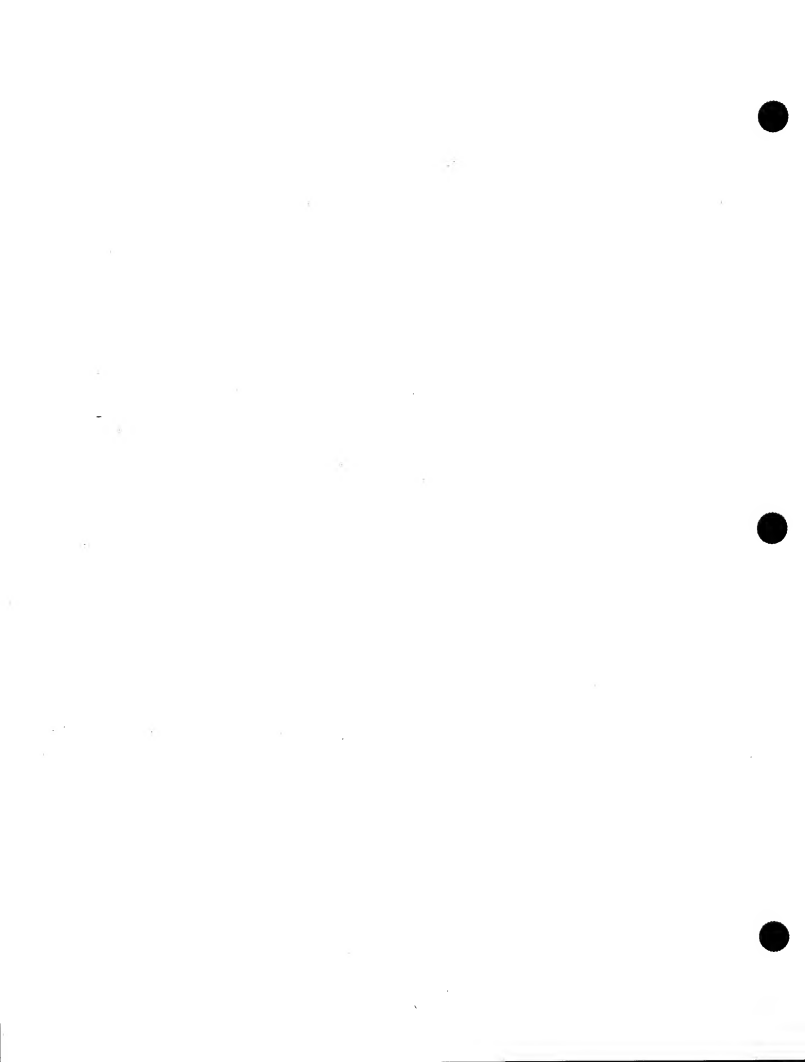
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## Note of appreciation

*Canada owes the success of its statistical system to a long-standing co-operation involving Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued co-operation and goodwill.*



### **What's New in the 1996 Digital Boundary File / Digital Cartographic File**

- *An Enumeration Area Digital Cartographic File is available for the first time*
- *Digital Cartographic Files are generally consistent with each other for standard levels of geography - in 1991, only Digital Boundary Files were consistent*
- *1996 Digital Cartographic Files now include a separate map layer featuring augmented coverage of in-land lakes and rivers (as polygons)*
- *A Digital Cartographic File for Forward Sortation Areas reported by Census respondents is available for the first time*
- *Some Digital Cartographic Files are available in two versions: one adequate for small scale mapping of the country as a whole, one appropriate for large scale mapping*
- *All files, Digital Boundary and Digital Cartographic, are consistent with Street Network Files (other geographic products containing streets, railways, hydrography, and other physical features, as well as feature names and street names)*
- *Digital Boundary Files are similar to the 1991 products*

<p>A portion of the Digital Hydrographic Base Information for Canada was provided by Geomatics Canada, Natural Resources Canada</p>
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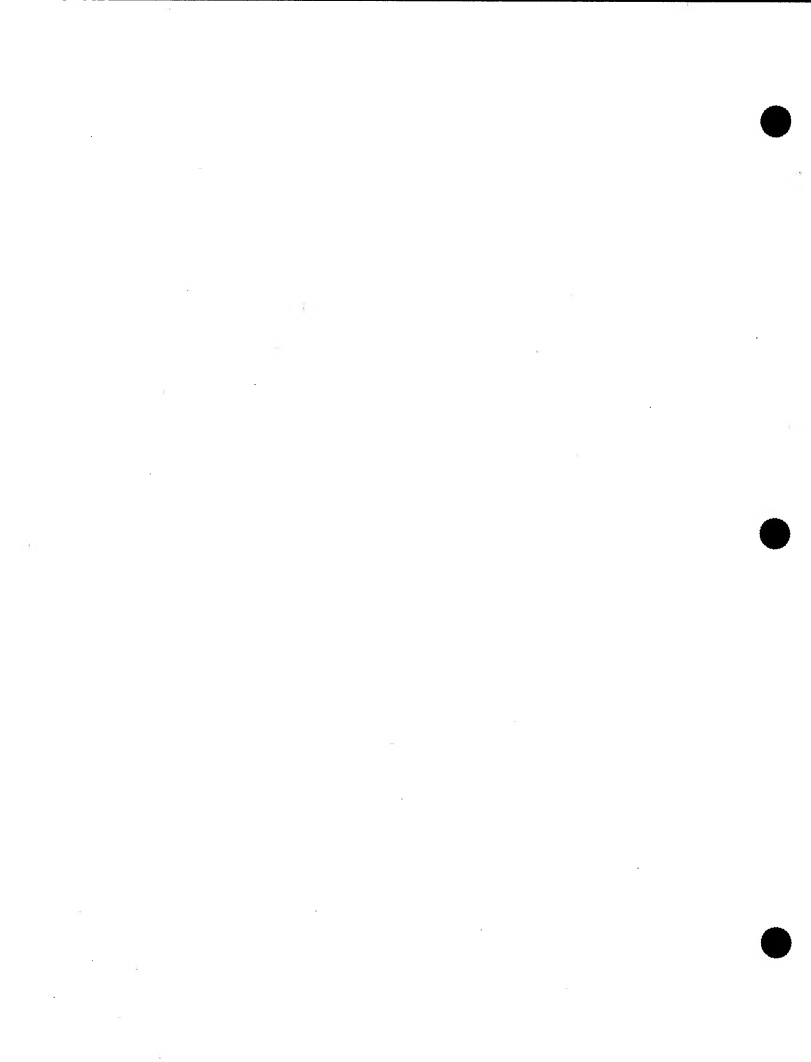
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## 1. About this Guide

This Reference Guide is intended for users of any or all products in the Digital Boundary File / Digital Cartographic File series. Since Digital Cartographic Files were created from Digital Boundary Files, each main heading provides information related to the Digital Boundary Files, followed by the additional information specific to Digital Cartographic Files.

The Overview section provides information related to all products in the series, including a description of the products and the general methodology used to create the products.

Section 3 gives a detailed description of the creation and data quality of enumeration area (EA) boundaries. Enumeration areas are the smallest geography unit for which census data are usually available. Digital boundaries for all other standard geography levels are created by aggregating enumeration areas. The data quality statement provides information to evaluate the suitability of the data for a particular use. Technical specifications include system requirements, installation guidelines, record layout and file sizes (in bytes). In this section, the choice of lower and upper case letters for file names and record layout description may not correspond to the actual combination of upper and lower case in the product. The file sizes may differ slightly from what is indicated in the relevant table.

Each of the next 10 sections focuses on one of the geographic levels for which a standard Digital Boundary File (or Digital Cartographic File) is available. The content and technical specifications of each product are described in the following terms: number of geographic units, number of polygons, format of the geographic codes, record layout. Also, a description of method of derivation or data quality considerations specific to each file is included if required.

The glossary provides geographic terms and concepts in summary form only. More details can be found in the 1996 Census Dictionary (Catalogue No. 92-351-XPE).

This Reference Guide does not provide details on specific software packages available to use with Digital Boundary and Digital Cartographic Files. Users are advised to contact the appropriate software vendor for information. A current list of software vendors able to supply Digital Boundary File and Digital Cartographic File products in their own format is maintained by Statistics Canada. Please contact your nearest Regional Reference Centre for information.

This Reference Guide is based on the best information available at the time of its release. It in no way constitutes a warranty of the data in the event that users may observe characteristics that deviate from those stated in this document. Many geographic codes and numbers presented in this guide have been transcribed from computer screens and internal written reports and then key-entered. All efforts have been made to ensure that the verification of this product has been thoroughly done, however, there is no guaranty that the data are 100% accurate.

## 2. Overview

### 2.1 Introduction

The 1996 Digital Boundary File (DBF) / Digital Cartographic File (DCF) is a series of products that depict boundaries of standard geography units. In this Reference Guide, the terms standard geography level or standard geographic units are used to refer to the geography levels defined in the *Standard Geography Classification* and geography levels established primarily for the purpose of collecting and disseminating Census data. A diagram illustrating the hierarchy of standard geography levels is included in *Appendix A* of this guide.

The series also includes Digital Cartographic Files for two non-standard geography levels, namely Forward Sortation Areas (as reported by Census respondents) and the 1996 Representation Order Federal Electoral Districts.

Digital Boundary Files portray the official boundaries used for 1996 Census collection and, therefore, often extend as straight lines into bodies of water. In Digital Cartographic Files, these boundaries were modified to follow the coastlines and shorelines on the perimeter of Canada's land mass, including major islands. The Digital Cartographic Files include a separate map layer showing lakes, some rivers and some estuaries. This "water" layer can be used for additional reference purposes when mapping or displaying the boundaries. Boundaries and bodies of water are depicted as polygons.

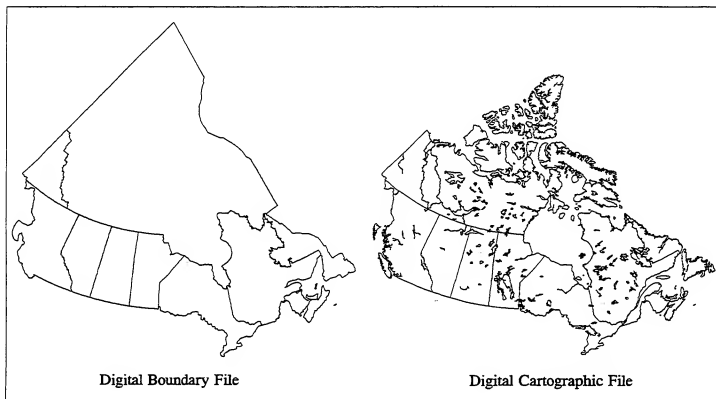
Digital Boundary Files and Digital Cartographic Files are available for the following levels of geography:

- Provinces and Territories (Catalogue number 92F0029XDE)
- Federal Electoral Districts (1987 Representation Order) (Catalogue number 92F0030XDE)
- Census Divisions (Catalogue number 92F0032XDE)
- Census Subdivisions (Catalogue number 92F0034XDE)
- Census Consolidated Subdivisions (Catalogue number 92F0033XDE)
- Census Metropolitan Areas and Census Agglomerations (including Primary Census Metropolitan Areas and Primary Census Agglomerations) (Catalogue number 92F0035XDE)
- Census Tracts (Catalogue number 92F0036XDE)
- Designated Places (Catalogue number 92F0038XDE)
- Urban Areas (Catalogue number 92F0037XDE)
- Enumeration Areas — the smallest geographic area for which census data are usually available (Catalogue number 92F0040XDE)

This reference guide also documents the Digital Cartographic File for 1996 Census Forward Sortation Areas (reported by Census respondents) (Catalogue number 92F0039XDE). A separate reference guide is available for the Federal Electoral Districts (1996 Representation Order) (Catalogue number 92F0031XDE) since these boundaries were derived using a totally different methodology than what is described here.

The following figure illustrates the difference between the Provinces and Territories DBF and DCF (limits and separate water coverage) of Canada.

Figure 1. DBF and DCF Maps of Canada



## 2.2 Purpose of the Product

The Digital Boundary Files were produced to support the 1996 Census of Population. Approximately 25,000 collection maps were automatically produced using a pre-census version of the EA Digital Boundary File and approximately 4,300 EA reference maps were automatically produced using the final version of the EA Digital Boundary File.

Digital Cartographic Files were created to support the spatial analysis and thematic mapping of data from the 1996 Census of Population, in particular where realistic shorelines are required.

With the appropriate computer software, Digital Cartographic Files provide the framework for thematic mapping to support applications such as land use and demographic studies, or social, economic and market research. Digital Boundary Files are not suitable for mapping or display where realistic shorelines are required. They may however be the preferred choice of users who wish to apply their own shorelines to the official boundaries.

## 2.3 General Methodology

### Digital Boundary Files

For census collection purposes, Canada is divided into small geographic areas called enumeration areas or EAs. Enumeration areas are delineated to respect all higher levels of geography. Therefore, the 49,361 enumeration areas defined for the 1996 Census can be used as the "building-blocks" for all other standard geography levels.

The EA digital boundaries were required for activities related to census collection prior to the 1996 Census. Hence, the final EA Digital Boundary File was constructed via a series of "cycle" updates which were spread over a three year period.

Different methods were used to create the EA boundary file, depending on whether or not the EAs are covered by Street Network Files. For most large urban centers (and a few small urban centers), Statistics Canada maintains digital Street Network Files containing streets, railways, hydrography and other physical features, municipal boundaries, and other information such as feature names and address ranges. The features in the Street Network Files that form EA boundaries (i.e., streets, rivers) were used. Street Network Files cover more than 60% of the population, but less than 1% of the total land area of Canada.

In the remaining large and small urban centers and in rural areas, the EA boundaries were digitized from the base maps on which the EAs had been manually delineated. Refer to the Data Quality Statement for the EA Digital Boundary File, Section 3.3.1 for more details on the derivation.

The final EA Digital Boundary File for Canada is the source for creating all other boundary files. Component EAs are aggregated to create all higher order geography levels. To achieve this, each EA in the boundary file is linked to the higher order geographic code through the Geographic Attribute Data Base, a database maintained within Statistics Canada and which provides all the linkages to the various geography levels. The following diagrams illustrate the process for aggregating EA boundary polygons to the other geographic areas. In this example, EAs are aggregated to create census tracts (CTs).

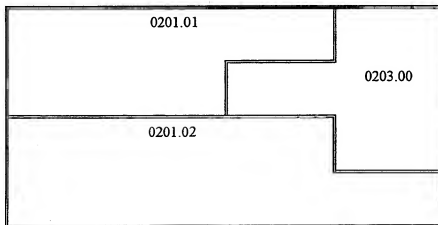
This first diagram depicts a portion of the EA digital boundary file. Each polygon represents one EA with its unique EA code assigned to the appropriate polygon:

10503001	10503002	10503003	10503004
10503008	10503007	10503006	10503005
10503009	10503010	10503011	10503012
10503016	10503015	10503014	10503013

Using the EA code as a link to the Geographic Attribute Data Base, the appropriate CT numerical name is identified and assigned to each EA polygon. The diagram below shows the EA polygons with the appropriate CT numerical name below the EA code.

10503001	10503002	10503003	10503004
0201.01	0201.01	0201.01	0203.00
10503008	10503007	10503006	10503005
0201.01	0201.01	0203.00	0203.00
10503009	10503010	10503011	10503012
0201.02	0201.02	0201.02	0203.00
10503016	10503015	10503014	10503013
0201.02	0201.02	0201.02	0201.02

The EA boundaries common to neighbouring EAs within the same CT are "dissolved" or eliminated. The resulting CT boundary file is depicted below.



This same procedure was used to produce digital boundaries for all other standard geography levels in the series.

## Digital Cartographic Files

The boundaries depicted on Digital Boundary Files were modified to follow the coastlines and shorelines (hereafter called shorelines) at the perimeter of Canada's land mass to create Digital Cartographic Files. A separate map layer containing lakes, some rivers and some estuaries was also created.

The hydrographic features included on Digital Cartographic Files and the separate water layer were obtained from two distinct sources: in-house Street Network Files and the Digital Hydrographic Base Information for Canada, a digital map product from Geomatics Canada, Natural Resources Canada. Where conflicts existed between features portrayed on the Digital Boundary File and the Digital Hydrographic Base, the Digital Boundary File took precedence. Similarly, the hydrography of Street Network Files, where available, took precedence over the Digital Hydrographic Base.

The polygons depicted on the separate water layer were generalized to varying degree depending on area in the country. This measure was taken to ensure that all products in the series met the requirements of most desk-top mapping packages currently on the market.

The EA Digital Cartographic Files were created first. The EA polygons were subsequently aggregated to produce Digital Cartographic Files for all other standard geography level in the series. Boundaries for forward sortation areas (FSA) are also based on EA boundaries. However, a distinct method was used to assign a FSA to each EA since there is no exact relationship between these two units. Users should refer to Section 13 for more details on the creation of the 1996 Forward Sortation Area Digital Cartographic File.

Three Digital Cartographic Files showing national coverage were further generalized to create products suitable for small scale mapping (on 8 1/2 X 11 inches paper) of the country as a whole. The Douglas-Peucker algorithm was used to generalize the shape of the boundaries of provinces and territories, federal electoral districts (1987 Representation Order) and census divisions. The resulting Digital Cartographic Files are consistent with each other but should not be overlaid with the other products in the series. The accompanying water coverage layer was also generalized.

## 2.4 Reference Date

Most Digital Boundary and Digital Cartographic Files reflect the legislative and administrative geographic framework as it existed on January 1, 1996. Notification of legislative changes by provincial or territorial authorities was required by March 1, 1996 in order for Statistics Canada to implement changes.

The 1996 enumeration areas were delineated to respect that geographic framework. However, modifications to the EA delineation were allowed in the course of census collection. The enumeration area digital boundaries were finalized on December 1, 1996. The file reflects the EA geographic framework as defined by Census Subdivision (CSD) legislative changes, Chief Electoral Office (CEO) revisions, post-1996 census splits, 1991 Compendium of Errors corrections, and other cartographic enhancements and revisions to the geographic boundaries.

The reference date for forward sortation areas boundaries is Census Day, May 14, 1996.

## 2.5 Limitations

The Digital Boundary Files are not suitable for computing land area, thematic mapping applications or other types of analyses requiring the realistic depiction of shorelines and water bodies, unless the user intends to apply his or her own shorelines to the boundaries.

The positional accuracy of Digital Boundary and Digital Cartographic Files does not support cadastral, surveying or engineering applications.

The source data used to create the products carried a wide range of different scales. Therefore, the digital boundary and digital cartographic files will not be precise if plotted at a larger scale than the scale of the source material used in their creation. In particular, the shorelines originally digitized at a scale of 1:2,000,000 (outside SNF areas) will not support large scale mapping.

## 2.6 Technical Specifications

All Digital Boundary and Digital Cartographic Files are available in ARC/INFO® EXPORT and in MapInfo® Version 4.0 for Windows format. For each format, users have the choice of an English or French version of the product. The coordinates are in latitude/longitude.

All files are offered on IBM-compatible high density diskette (3.5"). Some large files may be available on CD-ROM.



### 3. Enumeration Areas Digital Boundary File / Digital Cartographic File

The information provided in this section pertains to the enumeration area products. Additional information specific to higher levels of geography are provided in sections 4 through 13.

#### 3.1 Content

The final EA Boundary File contains 49,502 polygons representing 49,361 EAs which corresponds to the national coverage. Digital Cartographic Files typically contain more polygons. This results primarily from the addition of polygons representing coastal islands. Fourteen enumeration areas falling entirely into water are not included on the EA Digital Cartographic File. These EAs do not contain any population; they were created due to the intersection of higher levels of geography.

A breakdown of the number of enumeration areas and polygons by province/territory is provided below for both files.

Province / Territory	Digital Boundary File			Digital Cartographic File		
	Number of EAs	Number of Polygons	Number of EAs in more than one part	Number of EAs	Number of Polygons	Number of EAs in more than one part
Newfoundland	1,236	1,237	1	1,231	1,577	92
Prince Edward Island	267	267	0	267	284	14
Nova Scotia	1,511	1,515	3	1,511	1,598	55
New Brunswick	1,393	1,395	2	1,391	1,441	32
Quebec	11,684	11,715	10	11,683	12,012	148
Ontario	16,469	16,532	28	16,466	16,756	129
Manitoba	2,050	2,065	10	2,050	2,065	10
Saskatchewan	2,844	2,856	11	2,844	2,856	11
Alberta	4,746	4,752	6	4,746	4,752	6
British Columbia	6,880	6,886	6	6,878	7,400	101
Yukon Territory	111	112	1	111	119	2
Northwest Territories	170	170	0	169	513	16
Canada	49,361	49,502	78	49,347	51,373	616

#### 3.2 Comparison to the 1991 product

The 1996 Enumeration Area Digital Boundary File is quite similar in terms of methodology and data quality to the 1991 product. However, the 1996 EA Digital Boundary File may not match the 1991 product even in areas where there are no changes to the EA delineation. This results from the impact of various cartographic adjustments, updates in the street network files and some redigitizing of boundaries.

The Enumeration Areas Digital Cartographic File is a new product in 1996.

### 3.3 Data Quality

The purpose of this data quality statement is to provide detailed information for users to evaluate the suitability of the data for a particular use. Five fundamental components of a data quality statement are: lineage, positional accuracy, attribute accuracy, logical consistency and completeness.

#### 3.3.1 Lineage

*Lineage includes descriptions of the source material from which the data were derived and the methods of derivation, including the dates of the source material and all transformations involved in producing the final digital files.*

#### Digital Boundary File

The EA Digital Boundary File was created over a period of 3 years. The process involved a series of updates to the 1991 boundaries to reflect changes in municipal boundaries, updates to the street networks and splits of 1991 enumeration areas due to population growth. The final EA Digital Boundary File reflects the enumeration area geographic framework as it existed on December 1, 1996.

The 1991 digital boundaries were updated using different methodologies, depending on the availability of in-house digital files called Street Network Files.

In most large urban centers (and a few small urban centers), Statistics Canada maintains digital Street Network Files containing streets, railways, hydrography and other physical features, municipal boundaries, and other relevant information such as feature names and address ranges.

Where available, street network features (e.g., streets, rivers) which actually form the EA boundaries were used to update the boundaries. Modifications to the EA boundaries or EA splits were performed using the "block-swapping" routine in ARC/INFO which altered the attribute data (i.e., linkages) of the base polygons of the SNF.

Street Network Files cover more than 60% of the population, but less than 1% of the total land area. They were originally digitized from maps at various scales ranging from 1:2,400 to 1:50,000 and further updated to reflect information available as of Census Day, May 14, 1996.

In areas not covered by Street Network Files, that is, parts of some large urban centers, most small urban centers and rural areas, the EA boundary updates were digitized from the base maps on which the EAs had been manually delineated and drafted.

In the parts of large urban centers not covered by the Street Network Files, the background base map information was obtained from various source documents, with scales ranging from 1:2,400 to 1:75,000.

In small urban centers, manually drafted source maps depicting EAs in census subdivisions or unincorporated places were used where necessary. Map scales of the original maps varied from 1:2,400 to 1:250,000.

In rural areas, the source maps were the 1991 Series 3 EA Reference Maps. More specifically:

- Provinces: National Topographic Series (NTS) published by Natural Resources Canada, at scales 1:50,000 and 1:250,000. Map vintages range from 1954 to 1990, with manually drafted updates from previous census collection maps. The map projection is Transverse Mercator.

- Yukon Territory : MCR Series, Map #25, at 1:1,000,000. The map vintage is 1972, with manually drafted updates from the previous census collection maps. The map projection is Lambert Conformal Conic with standard parallels at 49° N and 77° N.
- Northwest Territories : MCR Series, Map #36 at 1:4,000,000. The map vintage is 1974, with manually drafted updates from the previous census collection maps. The map projection is Lambert Conformal Conic, with standard parallels at 64° N and 88° N.

Each polygon was investigated to ensure each contained an ARC/INFO® label point. In SNF areas, this label point corresponds to the EA representative point. For non-SNF covered areas, the coordinates of the ARC/INFO® label points were replaced by the coordinates of the representative point. Representative points are guaranteed to fall on land, except in the case of legitimate water EA's listed in *Appendix B*. A detailed description of enumeration area representative points and a discussion about their relationship with the ARC/INFO® label point is provided in *Appendix C*.

The 1987 Representation Order Federal Electoral Districts (FED) were used as the processing unit since all EAs must respect FED boundaries and the FED is the principal unit for organizing the census collection operations. The EA boundary files for each of the 295 FEDs were completed and verified, and finally joined together by a process of "edge-matching" to create the national file. In case of conflict in the final join, the SNF boundaries always took precedence.

All digitized non-SNF EA updates and their consequent impact on high level boundaries were visually verified against source base maps.

Final certification of the boundaries was performed first by integrity checks between the EA DBF and the Geographic Attribute Data Base (GADB). Subsequently, the boundaries were certified via contiguity checks and visual checks at the higher geographic levels, i.e., federal electoral district (FED), census division (CD), economic region (ER), census subdivision (CSD), census consolidated subdivision (CCS), census metropolitan area and census agglomeration (CMA/CA), census tract (CT), urban area (UA) and designated place (DPL). Final certification was performed at the provincial or national level.

All processing was performed using ARC/INFO® Version 6.1.1 in a Lambert Conic Conformal projection.

The projection was subsequently transformed to latitude/longitude. During the projection transformation process, the resulting latitude / longitude ARC/INFO® coverage caused some vertices to "snap" together, creating two illegitimate polygons without label points. The original shape of the two EAs involved was re-digitized on the final EA Digital Boundary File.

#### Digital Cartographic File

The boundaries of the 1996 EA Digital Boundary File were modified in the EA Digital Cartographic File to follow the coastlines and shorelines on the perimeter of Canada's land mass, including major islands. The Digital Cartographic File also includes a separate map layer showing lakes, some rivers and some estuaries. Several steps led to the creation of that final product.

In areas covered by Street Network Files, the hydrographic features of the SNF were used to modify the Digital Boundary File. Elsewhere, the shorelines, lakes and rivers were taken from the drainage layer of the Digital Hydrographic Base, a digital map product of Geomatics Canada, Natural Resources Canada. The Digital Hydrographic Base was originally created using 1971 base maps and subsequently updated using various sources. The

latest updates reflected in the drainage layer used in the creation of digital cartographic files are from 1990. The Digital Hydrographic Base was digitized at a scale of 1:2 million. The Street Network Files were originally digitized from maps at various scales ranging from 1:2,400 to 1:50,000.

Initially, an integrated digital "water coverage" layer was created for the country by combining water features of the drainage layer of the Digital Hydrographic Base and the hydrographic features portrayed on in-house Street Network files. The Digital Hydrographic Base (scale of 1:2 million) was used as the base. In areas covered by a Street Network File, the Digital Hydrographic Base water coverage was replaced by the SNF hydrographic features (scales ranging from 1:2,400 to 1:50,000). Where conflicts occurred at the edge of the matched areas, SNF features always took precedence over Digital Hydrographic Base. In cases where the EA boundary on the Digital Boundary File followed a shoreline, that shoreline was kept if the scale was more precise than what was found on the Digital Hydrographic Base base.

All rivers, estuaries, bays and harbors, with the exception of the St. Lawrence River, were artificially closed at the perimeter of Canada's land mass. This measure was taken to allow the split of external shorelines and in-land bodies of water described later.

Once this integrated water coverage was created (shorelines, coastlines, lakes and double-line rivers) it was overlaid on the national EA Digital Boundary File. The resulting digital map portrays EA boundaries with shorelines, coastal islands and in-land bodies of water all in one layer. Each polygon of this intermediate working file carries attributes to document its source and whether it represents land or water.

Each enumeration area was investigated to ensure it still contained the representative point identified in the creation of the Digital Boundary File. Exceptionally, some representative points were found to fall into water for EAs based on land. In these cases, the shorelines were moved until all representative points were brought back onto land. No formal statistics were kept related to the displacement of line segments (shorelines). To ensure consistency with other geography products, the representative points themselves were never moved, and neither were hydrographic features taken from Street Network Files. A list of legitimate water EAs is provided in *Appendix B*.

The arcs forming coastal islands, lakes, double line rivers and islands inside double line rivers were then generalized to varying degrees depending on area in the country. The GENERALIZE function of ARC/INFO employs the Douglas-Peucker algorithm to weed unnecessary coordinates or generalize the shape of selected arcs. Generally, these modifications were only performed on arcs and polygons obtained from the Digital Hydrographic Base to maintain consistency between digital cartographic files and SNF. The only exception is found in the Census Metropolitan Area of St. John's where some arcs representing SNF water coverage were generalized minimally. The reduction of points resulting from the generalization was minimal in the maritime provinces, Alberta, British Columbia and Yukon Territory. It varied from minimal to moderate within Newfoundland, Quebec, Ontario, Manitoba and Saskatchewan and was extensive in Northwest Territories.

Some polygons representing coastal islands, lakes, double line rivers and islands inside rivers were eliminated using various size thresholds. The level of generalization and the thresholds for eliminating small lakes and islands were determined through an iterative process. The ultimate objective was to ensure that all standard geographic units be represented by polygons that did not exceed 32,000 points.

The last stage of the process was performed to separate the shorelines and coastlines bordering Canada from in-land bodies of water to create a two-layer product. This was achieved by selecting and saving all "water" polygons on a

separate file, leaving only land on the main layer. This split allows users to clearly distinguish in-land water features from other boundaries.

Users should take note that the national (non generalized) separate water layer contains 63 provincial boundary arcs within water. No other water coverages include provincial boundaries in the middle of bodies of water.

**St. Lawrence River:** For most Digital Cartographic Files, the boundaries follow the shoreline of the St. Lawrence River and the St. Lawrence itself is not depicted as a polygon on the separate water layer. Thus the river belongs to the "outside" world, together with the oceans and the Great Lakes. This presents a unique situation for three census metropolitan areas (CMAs) in the province of Quebec. The St. Lawrence River runs across the CMAs of Québec, Trois-Rivières and Montréal. Consequently, the methodology described here resulted in these three CMAs being depicted in several parts (north and south shore of the St. Lawrence and islands) with nothing in between. Whereas the provincial files put these three CMAs in a broad context, the individual CMA coverages seemed "incomplete" without a polygon to illustrate the St. Lawrence. Therefore, a decision was made to treat the St. Lawrence as an in-land body of water for these three CMAs. This introduces a difference in the boundaries and water coverage between the provincial or national coverage and the three specific CMA coverages for the Enumeration Areas, Census Tracts and Census Subdivisions Digital Cartographic Files.

All processing to that point was done in a Lambert Conic Conformal projection. This projection was transformed to latitude/longitude using ARC/INFO. Each enumeration area polygon was investigated again to ensure each still contained the representative point identified in the creation of the digital boundary file.

### 3.3.2 Positional Accuracy

*Positional accuracy is the difference between the "true" position of a feature in the real world and the "estimated" position stored in the digital file.*

#### Digital Boundary File

For this document, the "true" EA boundary is considered to be the boundary as depicted on the source materials.

Positional accuracy depends on the quality of the source material used (NRCAN's NTS and MCR map series and the Street Network File for the position of roads, rail-roads, rivers, lakes, etc.), as well as the manual drafting of the base map features and boundaries. No numerical measurements of positional accuracy have been made. Positional accuracy is presented here in terms of descriptive statements comparing the digital files to the source base materials.

After the preliminary EA boundary files were created (by FED), a verification process was conducted where the EA boundaries were plotted showing EA linkages to the census subdivisions, census tracts, urban areas and designated places. All modifications to the EAs and their impact on the high level geography were verified. All limits not undergoing an update from the 1991 base were considered correct and therefore not checked for correctness.

Some EA boundaries follow hydrographic features. However, in areas with bodies of water, EA boundaries often do not follow the shoreline but extend into water to ensure complete coverage of the land area and islands, to follow official municipal boundaries, or to facilitate digitizing. Therefore, in general, major shorelines are not depicted on Digital Boundary Files. In addition, if an EA boundary follows a single line "meandering" feature (such as a river or stream), the EA boundary may appear questionable, depending on the number of points used to represent the feature.

Some apartment buildings and collective dwellings are large enough to form one or more enumeration areas. These EAs are represented by small polygons at their approximate location within the Street Network File. The shape and size of these polygons have no meaning. If there are more than one EA in a single building, the EAs are depicted side-by-

side, irrespective of the shape of the building or the location of the different EAs within the building (for instance one EA being a group of floors).

Vessels (ships) and oil rigs can also form EAs. Such EAs, when possible, are represented by a small polygon in the water of their home port.

### Digital Cartographic File

The positional accuracy of the shorelines and other hydrographic features of the Digital Cartographic File depends on the quality of the source material used (SNF and the drainage layer of the Digital Hydrographic Base). No numerical measurements of positional accuracy have been made. Positional accuracy is presented here in terms of descriptive statements.

In areas covered by a Street Network File, the positional accuracy of all water features depends on the quality of the SNF.

Several measures taken in the creation of the Digital Cartographic File have introduced changes to the hydrography obtained from the Digital Hydrographic Base. As described in lineage, the water features of the Digital Hydrographic Base were adjusted to fit in with the water coverage of Street Network Files. The shorelines were generalized to varying degrees. Also, some shorelines were moved to ensure that all EA representative points were located on land, except for the legitimate cases of EAs entirely in water. Similarly, the DCF shoreline was delineated around two water EAs (inhabited according to the 1996 Census), all ship EAs, and the two known cases of oil rig/tanker EAs to make them land-based geographic areas. A list of vessels and oil rigs EAs and other EAs falling entirely in water is presented in *Appendix B*.

No measures of deviation from the original sources were made.

### 3.3.3 Attribute Accuracy

*Attribute accuracy refers to the accuracy of the non-positional information attached to each EA polygon.*

#### EA boundaries

The EA Digital Boundary File and Digital Cartographic File contain the 8-digit EA unique identifier (EAuid) composed of the 2-digit province code, the 3-digit federal electoral district code and a three digit code that makes enumeration areas unique within a FED.

Independent operations during the EA delineation and validation process provided a check between the digital EA boundary file and the EA codes on the Geographic Attribute Data Base (GADB). Integrity checks ensured that each EA delineated, and entered into GADB, was also digitized on the EA Digital Boundary File. The match was 100%. No further tests were conducted for Digital Cartographic Files.

With the exception of 4 attributes maintained by ARC/INFO for internal processing, all additional attributes on the Digital Boundary and Digital Cartographic Files were taken from the Geographic Attribute Data Base maintained by Statistics Canada.

#### Water coverage

In Digital Cartographic Files, each polygon of the separate water layer contains an area (in square metres) and a perimeter (in metres) measurement. These attributes were calculated in ARC/INFO during the processing phase performed in the Lambert Conic Conformal projection. These attributes provide an approximate measurement of water polygons. No measures of the accuracy of those two attributes are available.

There are no names associated with water polygons.

### 3.3.2 Logical Consistency

Automated processing through ARC/INFO® verified that all polygons were topologically correct and that they closed with no overlaps, overshoots or slivers. Lines are intersected only where intended and no lines are entered twice.

### 3.3.5 Consistency with Other Products

Digital Boundary and Digital Cartographic Files are generally consistent with other geographic products such as Reference Maps, Street Network Files and GeoRef, a data retrieval and tabular output tool with software and data.

The Enumeration Areas Reference Maps were created using the final EA Digital Boundary File. Water features on Reference Maps were taken from a different source and may not be consistent with Digital Cartographic Files.

Consistency is also generally maintained with the 1996 Street Network Files. The only discrepancies introduced while creating the Digital Cartographic Files result from the elimination of small lakes and islands and the generalization of some water features in the Census Metropolitan Area of St. John's. Users should also note that the updating of the various street network files will continue for several months after the creation of the EA digital boundary and Digital Cartographic Files. The impact of this last series of update on the Street Network will be documented in the 1996 SNF Reference Guide.

GeoRef allows users to explore the links between all standard levels of geography and to determine geographic codes, names, and population and dwelling counts. All enumeration areas portrayed on the EA Digital Boundary and Digital Cartographic files can be linked to GeoRef.

Finally, all 1996 enumeration areas for which census data will be available are represented on the EA Digital Boundary and Digital Cartographic Files.

### 3.3.6 Completeness

*Completeness expresses the degree to which the geographic entities (features) are captured according to the data capture specifications. It also contains information about selection criteria, definitions used and other relevant mapping rules.*

#### Digital Boundary File

The EA Digital Boundary File contains 49,502 boundary polygons, representing all 49,361 EAs delineated for the taking of the 1996 Census. Seventy eight EAs have more than one polygon.

Data are limited to EA boundary polygons. No other reference features are present.

### Digital Cartographic File

The EA Digital Cartographic File contains 51,373 boundary polygons, representing 49,347 enumeration areas. The 14 enumeration areas missing are entirely in water (off-shore) and do not contain any population. Data on the main map layer are limited to EA boundary polygons adjusted for the shorelines at the perimeter of Canada's land mass. The completeness of the island coverage depends on the level of details available from the source files and the various thresholds used to eliminate small islands. Islands smaller than 5 square kilometers were eliminated in most provinces; in the Northwest Territories, islands smaller than 20 square kilometers were removed.

The separate water layer contains polygons representing lakes and rivers that were wide enough to be depicted as polygons on the source files (SNF and Digital Hydrographic Base). So-called "single-line" rivers are not represented. In non-SNF areas, lakes smaller than 20 square kilometers were eliminated in most provinces; in the Northwest Territories, the threshold was set at 75 square kilometers. Lakes located on islands were eliminated if smaller than 10 square kilometers.

In areas covered by a Street Network File, lakes or double-line rivers smaller than 25 square kilometers were removed. This measure was taken despite the objective to maintain consistency between Street Network Files and Digital Cartographic Files. It is influenced by the fact that some Street Network Files contain a disproportionate number of small lakes.

#### **3.3.7 Conversion to MapInfo Format**

The Digital Boundary and Digital Cartographic Files were converted from ARC/INFO 7.0 to MapInfo® for Windows Version 4.0 using ARCLINK, a supplementary module of MapInfo®.

At this point, the map tables in MapInfo® contain one record per polygon. The last step in preparing the MapInfo® formatted files was to link geographic units with multiple parts (polygons). This link ensures the value assigned to these multiple polygon units was "counted" only once by the MapInfo® software when calculating frequency tables since there would be only one record per geographic unit, regardless of the number of polygons making up that geographic unit.

Lastly, only attributes meaningful to MapInfo were kept on the final product. Four working attributes generated by ARC/INFO were not carried to MapInfo files.

#### **3.4 Technical Specifications**

All products in the Digital Boundary File / Digital Cartographic File series are available in two formats: ARC/INFO® EXPORT and MapInfo® Version 4.0 for Windows.

The EA Digital Boundary and Digital Cartographic Files are available as standard products for the country as a whole, individual provinces or territories and 43 Census Metropolitan Areas or Census Agglomerations. The naming convention adopted to designate the various files available reflects these options.

All boundary files for EAs are named GEA\_nnnt.EXT, where "nnn" is a numerical code identifying the geographic coverage of the file and "t" is an alphabetical identifier of the type of boundaries used. The separate map layers of lakes and rivers for this product are named GPREnnnC.EXT for the national or provincial files and GCMAnnnC.EXT



for individual census metropolitan areas or tracted census agglomerations. The file name extension (EXT) varies by format.

nmn = 000 for the national coverage

010 - 061 for individual provinces or territories

001 - 999 for individual census metropolitan areas or tracted census agglomerations.

t = A for a digital boundary file

B for the main layer of the digital cartographic file (boundaries with shorelines)

The extension of the ARC/INFO® EXPORT files is E00. In MapInfo® for Windows, four files with different extensions are provided for each geographic coverage. These files can be opened directly (no requirement to import). The four extensions are: TAB, DAT, ID and MAP.

### 3.4.1 Record Layout

The following table shows the format of the attributes contained on the boundary files and on the separate water layer.

Item Name	WIDTH	OUTPUT	TYPE	DECIMALS
AREA <sup>1</sup>	4	12	F	3
PERIMETER <sup>1</sup>	4	12	F	3
Username # <sup>1</sup>	4	5	B	0
Username-ID <sup>1</sup>	4	5	B	0
Items for boundary files				
Eauid	8	8	C	-
snf	1	1	C	-
PRuid	2	2	C	-
CMAuid	3	3	C	-
Items for the separate water layer				
WATER	1	1	I	-
AREA_M2	8	12	F	0
PERIMETER_M	8	12	F	0

<sup>1</sup> Items included with ARC/INFO Export files only

#### Item Description

AREA of the polygon - maintained by ARC/INFO® (item not included in MapInfo files)

PERIMETER of the polygon - maintained by ARC/INFO® (item not included in MapInfo files)

username# maintained by ARC/INFO® for internal processing (item not included in MapInfo files)

username-ID	maintained by ARC/INFO® for internal processing (item not included in MapInfo files)
EAuid	uniquely identifies an enumeration area (composed of the 2-digit province or territory code, the 3-digit federal electoral district code, and the 3-digit EA code)
snf	identifies whether the enumeration area is covered by a street network file (T) or not (F)
PRuid	uniquely identifies a province or territory
CMAuid	uniquely identifies a Census Metropolitan Area or Census Agglomeration
WATER	value of "1" for water and, in ARC/INFO only, "0" for empty polygons (such as holes representing islands on a lake)
AREA_M2	is an approximate measurement of the area of the water feature in square metres
PERIMETER_M	is an approximate measure of the perimeter of the water feature in metres

## 3.4.2 File Sizes

Provinces, Territories and Tracted CMA/CAs	Code	File Name (Boundaries)	File size ARC/INFO	File size MapInfo	File Name (Water)	File size ARC/INFO	File size MapInfo
Newfoundland	10	GEA 010B	4,253,902	1,390,283	GPRED10C	1,141,058	261,169
Prince Edward Island	11	GEA 011B	446,236	131,903	GPRED11C	12,788	4,435
Nova Scotia	12	GEA 012B	3,729,449	1,415,059	GPRED12C	355,176	88,293
New Brunswick	13	GEA 013B	3,101,257	1,088,683	GPRED13C	465,837	151,119
Quebec	24	GEA 024B	17,650,754	5,264,007	GPRED24C	2,835,786	792,267
Ontario	35	GEA 035B	21,298,962	5,943,172	GPRED35C	3,254,382	836,606
Manitoba	46	GEA 046B	3,194,264	1,131,412	GPRED46C	1,473,338	482,065
Saskatchewan	47	GEA 047B	3,883,013	1,358,466	GPRED47C	682,764	206,970
Alberta	48	GEA 048B	6,943,660	2,267,052	GPRED48C	898,246	237,775
British Columbia	59	GEA 059B	12,758,777	4,153,320	GPRED59C	1,960,260	537,887
Northwest Territories	60	GEA 060B	275,088	93,611	GPRED60C	251,749	85,295
Yukon Territory	61	GEA 061B	1,141,360	315,385	GPRED61C	636,773	183,518
Canada	00	GEA 000B	78,061,183	24,522,215	GPRED00C	13,904,563	6,018,441
St. John's	001	GEA 001B	687,401	194,827	GCMA001C	439,891	99,482
Halifax	205	GEA 205B	840,109	250,734	GCMA205C	152,620	59,932
Moncton	305	GEA 305B	244,437	71,957	GCMA305C	66,622	32,333
Saint John	310	GEA 310B	416,815	145,440	GCMA310C	198,090	71,596
Chicoutimi - Jonquière	408	GEA 408B	318,813	92,079	GCMA408C	125,820	81,323
Quebec	421	GEA 421B	1,294,853	326,529	GCMA421C	152,568	101,653
Sherbrooke	433	GEA 433B	325,465	92,345	GCMA433C	18,435	9,605
Trois-Rivières	442	GEA 442B	284,477	80,739	GCMA442C	23,476	12,115
Saint-Jean-sur-Richelieu	459	GEA 459B	179,749	41,711			
Montréal	462	GEA 462B	5,159,955	1,189,557	GCMA462C	474,701	313,209
Ottawa-Hull	505	GEA 505B	1,708,595	460,080	GCMA505C	784,841	360,018
Kingston	521	GEA 521B	341,893	93,180	GCMA521C	25,670	7,632
Pellelville	522	GEA 522B	230,657	70,706	GCMA522C	20,446	11,603
Bellefleur	529	GEA 529B	214,179	69,359	GCMA529C	46,180	24,965
Oshawa	532	GEA 532B	387,935	99,232	GCMA532C	44,701	23,092
Toronto	535	GEA 535B	5,751,537	1,338,088	GCMA535C	325,839	111,458
Hamilton	537	GEA 537B	950,725	231,042	GCMA537C	80,892	25,253
St. Catharines - Niagara	539	GEA 539B	729,683	183,965	GCMA539C	203,174	103,889
Kitchener	541	GEA 541B	567,621	132,784	GCMA541C	101,456	47,456
Brantford	543	GEA 543B	173,361	45,920	GCMA543C	38,977	18,384
Guelph	550	GEA 550B	173,923	43,209	GCMA550C	23,578	13,139
London	555	GEA 555B	704,177	180,973	GCMA555C	125,233	72,869
Windsor	559	GEA 559B	425,707	98,627			
Sarnia	562	GEA 562B	157,299	41,198	GCMA562C	8,609	2,974
Barrie	568	GEA 568B	218,015	54,588	GCMA568C	9,698	5,459
North Bay	575	GEA 575B	166,777	41,899	GCMA575C	92,886	47,144
Sudbury	580	GEA 580B	390,279	119,671	GCMA580C	145,341	53,051
Sault Ste. Marie	590	GEA 590B	175,769	42,468	GCMA590C	67,087	22,431
Thunder Bay	595	GEA 595B	286,019	79,847	GCMA595C	24,319	10,779
Winnipeg	602	GEA 602B	1,045,239	253,196	GCMA602C	76,348	47,818
Regina	705	GEA 705B	333,311	81,462	GCMA705C	17,050	7,582
Saskatoon	725	GEA 725B	366,367	100,351	GCMA725C	11,325	5,996
Lethbridge	810	GEA 810B	114,795	28,700	GCMA810C	22,822	6,558
Calgary	825	GEA 825B	1,191,355	280,487	GCMA825C	98,328	42,136
Red Deer	830	GEA 830B	143,433	33,611	GCMA830C	54,835	37,378
Edmonton	835	GEA 835B	1,514,871	403,072	GCMA835C	56,286	31,359
Kelowna	915	GEA 915B	356,459	108,425	GCMA915C	80,666	44,147
Kamloops	925	GEA 925B	252,781	85,022	GCMA925C	69,612	48,305
Abbotsford	932	GEA 932B	267,327	74,955	GCMA932C	66,688	50,665
Vancouver	933	GEA 933B	2,913,971	675,792	GCMA933C	389,611	200,133
Victoria	935	GEA 935B	752,873	163,581	GCMA935C	70,215	23,817
Nanaimo	938	GEA 938B	310,897	80,833			
Prince George	970	GEA 970B	130,385	34,408	GCMA970C	40,501	19,845

## 4. Provinces and Territories Digital Boundary File / Digital Cartographic File

### 4.1 Content

The Provinces and Territories (PR) Digital Boundary File contains 14 polygons representing the ten provinces and two territories which correspond to the national coverage. Two provinces have more than one part; namely Nova Scotia and Quebec, each of which has two polygons. The two polygons for Nova Scotia are comprised of the mainland and Sable Island. The two polygons for Quebec are comprised of the mainland and Îles-de-la-Madeleine.

The Provinces and Territories Digital Cartographic File contains 199 polygons. The number of polygons per province and territory is shown in the following table.

Province / Territory	Number of polygons on DBF	Number of polygons on Generalized DCF
Newfoundland	1	13
Prince Edward Island	1	1
Nova Scotia	2	4
New Brunswick	1	3
Quebec	2	10
Ontario	1	8
Manitoba	1	1
Saskatchewan	1	1
Alberta	1	1
British Columbia	1	42
Yukon Territory	1	2
Northwest Territories	1	113
Canada	14	199

### 4.2 Data Quality Statement

The Province and Territories Digital Boundary and Digital Cartographic Files are the only products in the series that are not consistent with the digital boundaries of other standard geographic levels. Some of the provincial boundaries created by aggregating EA polygons in the EA boundary files (refer to Section 2.3 *General Methodology*) exceed the targeted limit of 32,000 points per polygon (refer to Section 3.3.1 *Lineage - Digital Cartographic File*). Therefore, these boundaries were generalized to create the final product.

The level of generalization applied was determined by visual assessment of the final result. The intent of this process was to remove boundary or shoreline details that were excessive for the purpose of small scale mapping, that is, the cartographic representation of the country on standard 8 1/2 X 11 inches paper. Coastal islands and lakes smaller than 95 square kilometers were eliminated.

Three new coverages were created in this process: Provinces and Territories, Federal Electoral Districts (1987 Representation Order) and Census Divisions. These three generalized products are fully compatible with each other.

They produce a realistic cartographic representation of the country but may not be appropriate for mapping individual provinces.

### 4.3 Technical Specifications

All products in the Digital Boundary File / Digital Cartographic File series are available in two formats: ARC/INFO® EXPORT and MapInfo® Version 4.0 for Windows.

The Provinces and Territories files are available for the country as a whole.

All boundary files are named GPREF00t.EXT, where "t" is an alphabetical identifier of the type of boundaries. The separate map layer of lakes and rivers for this product is named GPREF00G.EXT. The file name extension (EXT) varies by format.

t = A for a digital boundary file

F for the main layer of the generalized digital cartographic file (boundaries with shorelines)

The extension of the ARC/INFO® EXPORT files is E00. In MapInfo® for Windows, four files with different extensions are provided for each geographic coverage. These files can be opened directly (no requirement to import). The four extensions are: TAB, DAT, ID and MAP.

#### 4.3.1 Record Layout

The following table shows the format of the attributes contained on the boundary files and on the separate water layer.

Item Name	WIDTH	OUTPUT	TYPE	DECIMALS
AREA <sup>1</sup>	4	12	F	3
PERIMETER <sup>1</sup>	4	12	F	3
Username # <sup>1</sup>	4	5	B	0
Username-ID <sup>1</sup>	4	5	B	0
Items for boundary files				
PRename	21	21	C	-
PRfname	25	25	C	-
PRuid	2	2	C	-
PReabbr	10	10	C	-
PRfabbr	10	10	C	-
Items for the separate water layer				
WATER	1	1	I	-
AREA M2	8	12	F	0
PERIMETER M	8	12	F	0

<sup>1</sup> Items included with ARC/INFO Export files only

**Item Description**

AREA	of the polygon - maintained by ARC/INFO® (item not included in MapInfo files)
PERIMETER	of the polygon - maintained by ARC/INFO® (item not included in MapInfo files)
username#	maintained by ARC/INFO® for internal processing (item not included in MapInfo files)
username-ID	maintained by ARC/INFO® for internal processing (item not included in MapInfo files)
PRename	is the province or territory name in English
PRfname	is the province or territory name in French
PRuid	uniquely identifies a province or territory (the first 2 digits of the EAuid)
PReabbr	is the official English abbreviation for the province name
PRfabbr	is the official French abbreviation for the province name
WATER	value of "1" for water and, in ARC/INFO only, "0" for empty polygons (such as holes representing islands on a lake)
AREA_M2	is an approximate measurement of the area of the water feature in square metres
PERIMETER_M	is an approximate measurement of the perimeter of the water feature in metres

**4.3.2 File Sizes**

	File name (boundaries)	File size ARC/INFO	File size MapInfo	File name (water)	File size ARC/INFO	File size MapInfo
Canada(Generalized)	GPRE000F	1,227,440	338,717	GPRE000G	769,830	346,791

## 5. Federal Electoral Districts (1987 Representation Order) Digital Boundary File / Digital Cartographic File

### 5.1 Content

The Federal Electoral Districts (FED) Digital Boundary File and Digital Cartographic File reflect the 1987 Representative Order upon which the 1996 Census of Population was conducted.

The Digital Boundary File contains 298 polygons representing the 295 FEDs which correspond to the national coverage. Three FEDs have more than one part and are represented by two polygons each. These FEDs are;

- 12008; caused by the inclusion of Sable Island (Nova Scotia),
- 24010; caused by the inclusion of Îles-de-la-Madeleine (Quebec), and
- 24044; caused by a "figure eight" delineation of the FED. The two polygons have one node in common.

More occurrences of FEDs in several polygons are found in the Digital Cartographic Files due to the representation of shorelines and coastal islands. There are two versions of the Federal Electoral District (1987 Representation Order) Digital Cartographic File available. A generalization of the boundaries and water coverage was performed to create a version suitable for small scale mapping (8 1/2 X 11 inches paper) of the country as a whole. A breakdown of the number of federal electoral districts by province/territory and other information relevant to the content of each file are provided below.

	All Files	Digital Boundary File		Digital Cartographic File		Generalized Digital Cartographic File	
Province / Territory	Number of FEDs	Number of Polygons	Number of FEDs in more than one part	Number of Polygons	Number of FEDs in more than one part	Number of Polygons	Number of FEDs in more than one part
Newfoundland	7	7	0	358	7	18	4
Prince Edward Island	4	4	0	15	3	4	0
Nova Scotia	11	12	1	105	10	14	2
New Brunswick	10	10	0	62	7	12	2
Quebec	75	77	2	347	36	83	7
Ontario	99	99	0	352	30	107	4
Manitoba	14	14	0	14	0	14	0
Saskatchewan	14	14	0	14	0	14	0
Alberta	26	26	0	26	0	26	0
British Columbia	32	32	0	581	12	74	5
Yukon Territory	1	1	0	8	1	2	1
Northwest Territories	2	2	0	329	2	114	2
Canada	295	298	3	2,211	108	482	27

## 5.2 Comparison to the 1991 products

The Federal Electoral Districts (1987 Representation Order) Digital Boundary File was created by aggregating the component EA boundaries from the 1996 Census. It may differ slightly from the Digital Boundary File based on 1991 enumeration areas. The Federal Electoral Districts Digital Cartographic File is a new product in 1996.

## 5.3 Data Quality Statement

The Federal Electoral District (1987 Representation Order) Digital Boundary File was created by aggregating EA polygons in the EA Digital Boundary File as described in Section 2.3 *General Methodology*. Similarly, the Federal Electoral District Digital Cartographic File was derived from the EA Digital Cartographic File. EAs were linked to the corresponding federal electoral district using the linkages of the Geographic Attribute Data Base (GADB).

### 5.3.1 Generalized Digital Cartographic File - Method of Derivation and Recommended Use

As mentioned in Section 2.3 *General Methodology*, a more generalized version of the digital cartographic file for the federal electoral districts (1987 representation Order) was created.

The level of generalization applied was determined by visual assessment of the final result. The intent of this process was to remove boundary or shoreline details that were excessive for the purpose of small scale mapping, that is, the cartographic representation of the country on standard 8 1/2 X 11 inches paper. Coastal islands and lakes smaller than 95 square kilometers were eliminated.

Three new coverages were created in this process: Provinces and Territories, Federal Electoral Districts (1987 Representation Order) and Census Divisions. These three generalized products are fully compatible with each other. They produce a realistic cartographic representation of the country but may not be appropriate for mapping individual provinces.

## 5.4 Technical Specifications

All products in the Digital Boundary File / Digital Cartographic File series are available in two formats: ARC/INFO® EXPORT and MapInfo® Version 4.0 for Windows.

The Federal Electoral Districts (1987 Representation Order) files are available for the country as a whole.

The boundary files are named GFED000t.EXT, where "t" is an alphabetical identifier of the type of boundaries. The separate map layers of lakes and rivers for this product are named GPRED000t.EXT. The file name extension (EXT) varies by format.

- t =
- A for digital boundary file
  - B for the main layer of the digital cartographic file (boundaries with shorelines)
  - C for the separate map layer of lakes and rivers
  - F for the main layer of the generalized digital cartographic file (boundaries with shorelines)
  - G for the separate generalized map layer of lakes and rivers



The extension of the ARC/INFO® EXPORT files is E00.

In MapInfo® for Windows, four files with different extensions are provided for each geographic coverage. These files can be opened directly (no requirement to import). The four extensions are: TAB, DAT, ID and MAP.

#### 5.4.1 Record Layout

The following table shows the format of the attributes contained on the boundary files and on the separate water layer.

Item Name	WIDTH	OUTPUT	TYPE	DECIMALS
AREA <sup>1</sup>	4	12	F	3
PERIMETER <sup>1</sup>	4	12	F	3
Username # <sup>1</sup>	4	5	B	0
Username-ID <sup>1</sup>	4	5	B	0
Items for boundary files				
FEDname	47	47	C	-
FEDuid	5	5	C	-
PRuid	2	2	C	-
Items for the separate water layer				
WATER	1	1	I	-
AREA_M2	8	12	F	0
PERIMETER_M	8	12	F	0

<sup>1</sup> Items included with ARC/INFO Export files only

#### Item Description

AREA	of the polygon - maintained by ARC/INFO® (item not included in MapInfo files)
PERIMETER	of the polygon - maintained by ARC/INFO® (item not included in MapInfo files)
username#	maintained by ARC/INFO® for internal processing (item not included in MapInfo files)
username-ID	maintained by ARC/INFO® for internal processing (item not included in MapInfo files)
FEDname	is the federal electoral district name
FEDuid	uniquely identifies a federal electoral district (composed of the 2-digit province code and the 3-digit federal electoral district code)
PRuid	uniquely identifies a province or territory
WATER	value of "1" for water and, in ARC/INFO only, "0" for empty polygons (such as holes representing islands on a lake)
AREA_M2	is an approximate measurement of the area of the water feature in square metres
PERIMETER_M	is an approximate measurement of the perimeter of the water feature in metres

## 5.4.2 File Sizes

	File name (boundaries)	File size ARC/INFO	File size (in bytes) MapInfo	File name (wafer)	File size ARC/INFO	File size (in bytes) MapInfo
<b>Canada</b>	GFED000B	10,690,873	3,713,338	GPRE000C	13,904,563	6,018,441
<b>Canada (Generalized)</b>	GFED000F	1,683,604	531,770	GPRE000G	769,830	346,791

## 6. Census Divisions Digital Boundary File / Digital Cartographic File

### 6.1 Content

The Census Divisions (CD) Digital Boundary File contains 295 polygons representing 288 CDs which correspond to the national coverage. Six CDs have more than one part.

More occurrences of census divisions in several polygons are found in Digital Cartographic Files due to the representation of shorelines and coastal islands. There are two versions of the Census Division Digital Cartographic File available. A generalization of the boundaries and water coverage was performed to create a version suitable for small scale mapping (8 1/2 X 11 inches paper) of the country as a whole. A breakdown of the number of census divisions by province/territory and other information relevant to the content of each file are provided below.

Province / Territory	All Files	Digital Boundary File		Digital Cartographic File		Generalized Digital Cartographic File	
	Number of CDs	Number of Polygons	Number of CDs in more than one part	Number of Polygons	Number of CDs in more than one part	Number of Polygons	Number of CDs in more than one part
Newfoundland	10	10	0	361	9	21	4
Prince Edward Island	3	3	0	15	3	3	0
Nova Scotia	18	19	1	111	14	20	2
New Brunswick	15	15	0	67	8	17	2
Quebec	99	102	2	368	30	106	6
Ontario	49	50	1	302	24	56	5 <sup>1</sup>
Manitoba	23	24	1	24	1	23	0 <sup>1</sup>
Saskatchewan	18	19	1	19	1	18	0 <sup>1</sup>
Alberta	19	19	0	19	0	19	0
British Columbia	28	28	0	575	12	70	9
Yukon Territory	1	1	0	8	1	2	1
Northwest Territories	5	5	0	337	4	121	4
Canada	288	295	6	2,206	107	476	33

<sup>1</sup> Due to generalization, three census divisions (Ontario, Manitoba and Saskatchewan) in two parts on Digital Boundary files are represented by one polygon only on the Generalized Digital Cartographic Files.

### 6.2 Data Quality Statement

The Census Division Digital Boundary File was created by aggregating EA polygons in the final EA Digital Boundary File as described in Section 2.3 *General Methodology*. Similarly, the Census Division Digital Cartographic File was derived from the final EA Digital Cartographic File. EAs were linked to the corresponding census division using the linkages of the Geographic Attribute Data Base (GADB).

### 6.2.1 Generalized Digital Cartographic File - Method Of Derivation And Recommended Use

As mentioned in Section 2.3 *General Methodology*, a more generalized version of the digital cartographic file was created for the census divisions.

The level of generalization applied was determined by visual assessment of the final result. The intent of this process was to remove boundary or shoreline details that were excessive for the purpose of small scale mapping, that is, the cartographic representation of the country on standard 8 1/2 X 11 inches paper. Coastal islands and lakes smaller than 95 square kilometers were eliminated.

Three new coverages were created in this process: Provinces and Territories, Federal Electoral Districts (1987 Representation Order) and Census Divisions. These three generalized products are fully compatible with each other. They produce a realistic cartographic representation of the country but may not be appropriate for mapping individual provinces.

### 6.3 Technical Specifications

All products in the Digital Boundary File / Digital Cartographic File series are available in two formats: ARC/INFO® EXPORT and MapInfo® Version 4.0 for Windows.

The Census Division files are available for the country as a whole.

All boundary files are named GCD\_000t.EXT, where "t" is an alphabetical identifier of the type of boundaries. The separate map layers of lakes and rivers for this product are named GPREF000t.EXT. The file name extension (EXT) varies by format.

- t =
- A for digital boundary file
  - B for the main layer of the digital cartographic file (boundaries with shorelines)
  - C for the separate map layer of lakes and rivers
  - F for the main layer of the generalized digital cartographic file (boundaries with shorelines)
  - G for the separate generalized map layer of lakes and rivers

The extension of the ARC/INFO® EXPORT files is E00.

In MapInfo® for Windows, four files with different extensions are provided for each geographic coverage. These files can be opened directly (no requirement to import). The four extensions are: TAB, DAT, ID and MAP.

### 6.3.1 Record Layout

The following table shows the format of the attributes contained on the boundary files and on the separate water layer.

Item Name	WIDTH	OUTPUT	TYPE	DECIMALS
AREA <sup>1</sup>	4	12	F	3
PERIMETER <sup>1</sup>	4	12	F	3
Username # <sup>1</sup>	4	5	B	0
Username-ID <sup>1</sup>	4	5	B	0
Items for boundary files				
CDname	46	46	C	-
CDuid	4	4	C	-
PRuid	2	2	C	-
Items for the separate water layer				
WATER	1	1	I	-
AREA_M2	8	12	F	0
PERIMETER_M	8	12	F	0

<sup>1</sup> Items included with ARC/INFO Export files only

#### Item Description

AREA	of the polygon - maintained by ARC/INFO®	(item not included in MapInfo files)
PERIMETER	of the polygon - maintained by ARC/INFO®	(item not included in MapInfo files)
username#	maintained by ARC/INFO® for internal processing	(item not included in MapInfo files)
username-ID	maintained by ARC/INFO® for internal processing	(item not included in MapInfo files)
CDname	is the census division name	
CDuid	uniquely identifies a census division (SCG code)	
PRuid	uniquely identifies a province or territory	
WATER	value of "1" for water and, in ARC/INFO only, "0" for empty polygons (such as holes representing islands on a lake)	
AREA_M2	is an approximate measurement of the area of the water feature in square metres	
PERIMETER_M	is an approximate measurement of the perimeter of the water feature in metres	

## 6.3.2 File Sizes

	File name (boundaries)	File size ARC/INFO	File size MapInfo	File name (water)	File size ARC/INFO	File size MapInfo
<b>Canada</b>	GCD_000B	10,327,202	3,516,251	GPRED000C	13,904,563	6,018,441
<b>Canada (Generalized)</b>	GCD_000F	1,731,295	557,915	GPRED000G	769,830	346,791

## 7. Census Subdivisions Digital Boundary File / Digital Cartographic File

### 7.1 Content

The Census Subdivisions (CSD) Digital Boundary File contains 6,468 polygons representing 5,984 CSDs which correspond to the national coverage. There are 241 CSDs delineated in more than one part.

More occurrences of census subdivisions in multiple parts are found in Digital Cartographic Files due to the representation of shorelines and coastal islands.

A breakdown of the number of census subdivisions and polygons by province/territory is provided below for both files.

Province / Territory	Digital Boundary File			Digital Cartographic File		
	Number of CSDs	Number of Polygons	Number of CSDs in more than one part	Number of CSDs	Number of Polygons	Number of CSDs in more than one part
Newfoundland	381	388	7	381	752	65
Prince Edward Island	113	114	1	113	131	15
Nova Scotia	110	121	7	110	213	35
New Brunswick	283	294	8	283	348	39
Quebec	1,599	1,699	54	1,599	1,968	121
Ontario	947	1,052	48	947	1,280	104
Manitoba	298	364	33	298	364	33
Saskatchewan	970	1,016	23	970	1,016	23
Alberta	467	498	17	467	498	17
British Columbia	713	819	43	713	1 363	76
Yukon	35	35	0	35	42	1
Northwest Territories	68	68	0	68	398	6
Canada	5,984	6,468	241	5,984	8,373	535

### 7.2 Comparison to the 1991 products

In 1996, the Census Subdivisions Digital Cartographic File is consistent with the files for all other standard geography levels. The 1991 product was only consistent with the census division and provincial boundary products. In particular, the 1991 Census Subdivision Digital Cartographic File was not consistent with the boundaries of census tracts and consistency with Street Network Files was not guaranteed. Approximately 1,400 enumeration area or block face representative points fell in water when portrayed on 1991 Digital Cartographic Files. The 1996 shorelines were adjusted to ensure that the representative points remain on land.

### 7.3 Data Quality Statement

The Census Subdivision Digital Boundary File was created by aggregating EA polygons in the EA Digital Boundary File as described in Section 2.3. *General Methodology*. Similarly, the Census Subdivision Digital Cartographic File was derived from the EA Digital Cartographic File. EAs were linked to the corresponding census subdivision using the linkages of the Geographic Attribute Data Base (GADB).

#### 7.3.1 Consistency with other products

The Census Subdivisions Digital Cartographic File was created using the December 1996 version of the Digital Boundary File (refer to Section 3.3.1 Lineage). The Census Divisions and Census Subdivisions Reference Maps reflect the July 1996 Enumeration Area Digital Boundary File. A number of boundary revisions were made after these maps went to press. The following is a list of CSDs for which the changes are greater than one square kilometre:

SGC Code	CSD Name, Type	SGC Code	CSD Name, Type
6106097	Fort Smith, Unorganized, UNO	1007029	Plate Cove East, COM
6106016	Hay River, T	3556092	Cochrane, Unorganized, North Part, UNO
6106003	Enterprise, SET	3560050	Fort Albany (Part) 67, R
1213001	St. Mary's, MD	5955025	Hudson's Hope, DM
1213004	Guysborough, MD	5955019	Peace River, Subd. C, SRD
2469802	Akwesasne (partie), R	5953801	Fort George, R
2469075	Dundee, CT	5953023	Prince George, C
3560090	Kenora, Unorganized, UNO	4610043	Cartier, RM
5955812	Ingenika Point, S-E	5947018	Skeena-Queen Charlotte, Subd. A, SRD
5955036	Peace River, Subd. B, SRD	5959806	Fort Nelson 2, R
1007028	Division No. 7, Subd. F, SSUN	5959009	Fort Nelson-Liard, Subd. A, SRD

For more information on inconsistencies between digital files and reference maps refer to the Census Divisions and Census Subdivisions Reference Maps Reference Guide.

### 7.4 Technical Specifications

All products in the Digital Boundary File / Digital Cartographic File series are available in two formats: ARC/INFO® EXPORT and MapInfo® Version 4.0 for Windows.

The Census Subdivision Digital Boundary and Digital Cartographic Files are available as standard products for the country as a whole, individual provinces or territories and 43 Census Metropolitan Areas or Census Agglomerations. The naming convention adopted to designate the various files available reflects these options.

All boundary files for CSDs are named GCSDnnnn.EXT, where "nnnn" is a numerical code identifying the geographic coverage of the file and "t" is an alphabetical identifier of the type of boundaries used. The separate map layer of lakes and rivers for this product are named GPREnnnC.EXT for the national and provincial files and GCMAnnnC.EXT for individual census metropolitan areas or tracted census agglomerations. The file name extension (EXT) varies by format.



nnn = 000 for the national coverage

010 - 061 for individual provinces or territories

001 - 999 for individual census metropolitan areas or tracted census agglomerations.

t = A for a digital boundary file

B for the main layer of the digital cartographic file (boundaries with shorelines)

The extension of the ARC/INFO® EXPORT files is E00. In MapInfo® for Windows, four files with different extensions are provided for each geographic coverage. These files can be opened directly (no requirement to import). The four extensions are: TAB, DAT, ID and MAP.

#### 7.4.1 Record Layout

The following table shows the format of the attributes contained on the boundary files and on the separate water layer.

Item Name	WIDTH	OUTPUT	TYPE	DECIMALS <sup>1</sup>
AREA <sup>1</sup>	4	12	F	3
PERIMETER <sup>1</sup>	4	12	F	3
Username # <sup>1</sup>	4	5	B	0
Username-ID <sup>1</sup>	4	5	B	0
Items for boundary files				
CSDname	57	57	C	-
CSDtype	3	3	C	-
CSDuid	7	7	C	-
PRuid	2	2	C	-
CMAuid	3	3	C	-
Items for the separate water layer				
WATER	1	1	I	-
AREA_M2	8	12	F	0
PERIMETER_M	8	12	F	0

<sup>1</sup> Items included with ARC/INFO Export files only

#### Item Description

AREA	of the polygon - maintained by ARC/INFO®	(item not included in MapInfo files)
PERIMETER	of the polygon - maintained by ARC/INFO®	(item not included in MapInfo files)
username#	maintained by ARC/INFO® for internal processing	(item not included in MapInfo files)
username-ID	maintained by ARC/INFO® for internal processing	(item not included in MapInfo files)

CSDname	is the name of the census subdivision
CSDtype	is the type of the census subdivision
CSDuid	uniquely identifies a census subdivision (SGC code - composed of the 2-digit province code, the 2-digit census division code and the 3-digit census subdivision code)
PRuid	uniquely identifies a province or territory
CMAuid	uniquely identifies a census metropolitan area or census agglomeration
WATER	value of "1" for water and, in ARC/INFO only, "0" for empty polygons (such as holes representing islands on a lake)
AREA_M2	is an approximate measurement of the area of the water feature in square metres
PERIMETER_M	is an approximate measurement of the perimeter of the water feature in metres

## 7.4.2 File Sizes

Provinces, Territories and Tracted CMA/CAs	Code	File name (boundaries)	File size ARC/INFO	File size MapInfo	File name (water)	File size ARC/INFO	File size MapInfo
Newfoundland	10	GCSD010B	2,969,251	1,147,973	GPRED010C	1,141,058	261,169
Prince Edward Island	11	GCSD011B	274,320	93,609	GPRED011C	12,788	4,435
Nova Scotia	12	GCSD012B	876,832	346,818	GPRED012C	355,176	88,293
New Brunswick	13	GCSD013B	1,141,170	447,691	GPRED013C	465,837	151,119
Quebec	24	GCSD024B	4,744,491	1,836,191	GPRED024C	2,835,786	792,267
Ontario	35	GCSD035B	3,357,266	1,336,963	GPRED035C	3,254,382	836,606
Manitoba	46	GCSD046B	993,962	461,464	GPRED046C	1,473,338	482,065
Saskatchewan	47	GCSD047B	1,856,264	873,838	GPRED047C	682,764	206,970
Alberta	48	GCSD048B	1,675,939	797,731	GPRED048C	898,246	237,775
British Columbia	59	GCSD059B	4,198,878	1,631,777	GPRED059C	1,960,260	537,887
Northwest Territories	60	GCSD060B	126,767	67,123	GPRED060C	251,749	85,295
Yukon Territory	61	GCSD061B	981,072	323,616	GPRED061C	636,773	183,518
Canada	00	GCSD000B	22,586,548	9,049,996	GPRED000C	13,904,563	6,018,441
St. John's	001	GCSD001B	296,798	175,509	GCMA001C	439,891	99,482
Halifax	205	GCSD0205B	130,565	55,470	GCMA0205C	152,620	59,932
Moncton	305	GCSD0305B	36,286	24,981	GCMA0305C	66,622	32,333
Saint John	310	GCSD0310B	101,912	55,882	GCMA0310C	198,090	71,596
Chicoutimi - Jonquière	408	GCSD0408B	37,188	15,022	GCMA0408C	125,820	81,323
Quebec	421	GCSD0421B	125,101	61,237	GCMA0421C	152,568	101,653
Sherbrooke	433	GCSD0433B	43,575	24,700	GCMA0433C	18,435	9,605
Trois-Rivières	442	GCSD0442B	28,070	9,902	GCMA0442C	23,476	12,115
Saint-Jean-sur-Richelieu	459	GCSD0459B	20,576	7,981			
Montréal	462	GCSD0462B	339,638	146,345	GCMA0462C	474,701	313,209
Ottawa-Hull	505	GCSD0505B	99,946	58,315	GCMA0505C	784,841	360,018
Kingston	521	GCSD0521B	45,927	15,611	GCMA0521C	25,670	7,632
Belleville	522	GCSD0522B	26,407	9,671	GCMA0522C	20,446	11,603
Peterborough	529	GCSD0529B	47,180	17,070	GCMA0529C	46,180	24,965
Oshawa	532	GCSD0532B	28,108	8,851	GCMA0532C	44,701	23,092
Toronto	535	GCSD0535B	188,284	92,261	GCMA0535C	325,839	111,458
Hamilton	537	GCSD0537B	63,241	22,036	GCMA0537C	80,892	25,253
St. Catharines - Niagara	539	GCSD0539B	114,080	38,574	GCMA0539C	203,174	103,889
Kitchener	541	GCSD0541B	25,458	10,541	GCMA0541C	101,456	47,456
Brantford	543	GCSD0543B	20,897	8,339	GCMA0543C	38,977	18,384
Guelph	550	GCSD0550B	13,795	5,267	GCMA0550C	23,578	13,139
London	555	GCSD0555B	61,365	21,755	GCMA0555C	125,233	72,869
Windsor	559	GCSD0559B	44,781	14,075			
Sarnia	562	GCSD0562B	29,742	8,416	GCMA0562C	8,609	2,974
Barrie	568	GCSD0568B	14,671	5,267	GCMA0568C	9,698	5,459
North Bay	575	GCSD0575B	38,771	11,565	GCMA0575C	92,886	47,144
Sudbury	580	GCSD0580B	29,529	10,695	GCMA0580C	145,341	53,051
Sault Ste. Marie	590	GCSD0590B	56,109	15,738	GCMA0590C	67,087	22,431
Thunder Bay	595	GCSD0595B	70,103	20,065	GCMA0595C	24,319	10,779
Winnipeg	602	GCSD0602B	69,682	23,803	GCMA0602C	76,348	47,818
Regina	705	GCSD0705B	54,793	32,969	GCMA0705C	17,050	7,582
Saskatoon	725	GCSD0725B	42,768	23,268	GCMA0725C	11,325	5,996
Lethbridge	810	GCSD0810B	10,262	3,577	GCMA0810C	22,822	6,558
Calgary	825	GCSD0825B	32,038	12,897	GCMA0825C	98,328	42,136
Red Deer	830	GCSD0830B	19,442	6,137	GCMA0830C	54,835	37,378
Edmonton	835	GCSD0835B	139,679	77,952	GCMA0835C	56,286	31,359
Kelowna	915	GCSD0915B	63,279	23,060	GCMA0915C	80,666	44,147
Kamloops	925	GCSD0925B	46,409	17,274	GCMA0925C	69,612	48,305
Abbotsford	932	GCSD0932B	20,396	7,469	GCMA0932C	66,688	50,665
Vancouver	933	GCSD0933B	223,893	109,927	GCMA0933C	389,611	200,133
Victoria	935	GCSD0935B	197,027	88,215	GCMA0935C	70,215	23,817
Nanaimo	938	GCSD0938B	64,218	18,887			
Prince George	970	GCSD0970B	10,467	3,577	GCMA0970C	40,501	19,845

## 8. *Census Consolidated Subdivisions Digital Boundary File / Digital Cartographic File*

### 8.1 Content

The Census Consolidated Subdivisions (CCS) Digital Boundary File contains 2,654 polygons representing the 2,607 CCSs covering Canada. Twenty-five CCSs have more than one part.

More occurrences of Census Consolidated subdivisions in multiple parts are found in Digital Cartographic Files due to the representation of shorelines and coastal islands.

A breakdown of the number of census consolidated subdivisions and polygons by province/territory is provided below for both files.

Province / Territory	Digital Boundary File			Digital Cartographic File		
	Number of CCSs	Number of Polygons	Number of CCSs in more than one part	Number of CCSs	Number of Polygons	Number of CCSs in more than one part
Newfoundland	87	87	0	87	435	48
Prince Edward Island	68	68	0	68	85	13
Nova Scotia	52	52	0	52	144	28
New Brunswick	148	148	0	148	200	27
Quebec	1,143	1,149	6	1,143	1,422	52
Ontario	518	543	7	518	769	57
Manitoba	128	137	6	128	137	6
Saskatchewan	302	306	3	302	306	3
Alberta	73	74	1	73	74	1
British Columbia	82	84	2	82	628	25
Yukon Territory	1	1	0	1	8	1
Northwest Territories	5	5	0	5	337	4
<b>Canada</b>	<b>2,607</b>	<b>2,654</b>	<b>25</b>	<b>2,607</b>	<b>4,545</b>	<b>265</b>

### 8.2 Data Quality Statement

The Census Consolidated Subdivisions Digital Boundary File was created by aggregating EA polygons in the final EA Digital Boundary File as described in Section 2.3 *General Methodology*. Similarly, the Census Consolidated Subdivision Digital Cartographic File was derived from the EA Digital Cartographic File. EAs were linked to the corresponding Census Consolidated subdivision using the linkages of the Geographic Attribute Data Base (GADB).

### 8.3 Technical Specifications

All products in the Digital Boundary File / Digital Cartographic File series are available in two formats: ARC/INFO® EXPORT and MapInfo® Version 4.0 for Windows.

The Census Consolidated Subdivisions Digital Boundary and Digital Cartographic Files are available as standard products for the country as a whole and for individual provinces or territories.

All boundary files for CCSs are named GCCSnnnt.EXT, where “nnn” is a numerical code identifying the geographic coverage of the file and “t” is an alphabetical identifier of the type of boundaries used. The separate map layers of lakes and rivers for this product are named GPREnnnC.EXT. The file name extension (EXT) varies by format.

nnn = 000 for the national coverage

010 - 061 for individual provinces or territories

t = A for a digital boundary file

B for the main layer of the digital cartographic file (boundaries with shorelines)

The extension of the ARC/INFO® EXPORT files is E00.

In MapInfo® for Windows, four files with different extensions are provided for each geographic coverage. These files can be opened directly (no requirement to import). The four extensions are: TAB, DAT, ID and MAP.

#### 8.3.1 Record Layout

The following table shows the format of the attributes contained on the boundary files and on the separate water layer.

Item Name	WIDTH	OUTPUT	TYPE	DECIMALS
AREA <sup>1</sup>	4	12	F	3
PERIMETER <sup>1</sup>	4	12	F	3
Username # <sup>1</sup>	4	5	B	0
Username-ID <sup>1</sup>	4	5	B	0
Items for boundary files				
CCSname	49	49	C	-
CCSuid	7	7	C	-
PRuid	2	2	C	-
Items for the separate water layer				
WATER	1	1	I	-
AREA_M2	8	12	F	0
PERIMETER_M	8	12	F	0

<sup>1</sup> Items included with ARC/INFO Export files only

**Item Description**

<b>AREA</b>	of the polygon - maintained by ARC/INFO® (item not included in MapInfo files)
<b>PERIMETER</b>	of the polygon - maintained by ARC/INFO® (item not included in MapInfo files)
<b>username#</b>	maintained by ARC/INFO® for internal processing (item not included in MapInfo files)
<b>username-ID</b>	maintained by ARC/INFO® for internal processing (item not included in MapInfo files)
<b>CCSname</b>	is the name of the Census Consolidated Subdivision
<b>CCSuid</b>	uniquely identifies a Census Consolidated Subdivision (composed of the 2-digit province or territory code, the 2-digit census division code and the 3-digit CCS code)
<b>PRuid</b>	uniquely identifies a province or territory
<b>WATER</b>	value of "1" for water and, in ARC/INFO only, "0" for empty polygons (such as holes representing islands on a lake)
<b>AREA_M2</b>	is an approximate measurement of the area of the water feature in square metres
<b>PERIMETER_M</b>	is an approximate measurement of the perimeter of the water feature in metres

**8.3.2 File Sizes**

Province or Territory	PROV code	File name (boundaries)	File size ARC/INFO	File size MapInfo	File name (water)	File size ARC/INFO	File size MapInfo
Newfoundland	10	GCCS010B	2,379,581	775,846	GPRED010C	1,141,058	261,169
Prince Edward Island	11	GCCS011B	198,160	69,113	GPRED011C	12,788	4,435
Nova Scotia	12	GCCS012B	738,198	324,444	GPRED012C	355,176	88,293
New Brunswick	13	GCCS013B	860,615	329,641	GPRED013C	465,837	151,119
Quebec	24	GCCS024B	3,758,140	1,440,390	GPRED024C	2,835,786	792,267
Ontario	35	GCCS035B	2,425,265	892,087	GPRED035C	3,254,382	836,606
Manitoba	46	GCCS046B	606,001	339,645	GPRED046C	1,473,338	482,065
Saskatchewan	47	GCCS047B	985,631	490,895	GPRED047C	682,764	206,970
Alberta	48	GCCS048B	983,796	521,012	GPRED048C	898,246	237,775
British Columbia	59	GCCS059B	3,033,248	1,309,035	GPRED059C	1,960,260	537,887
Northwest Territories	60	GCCS060B	80,495	22,396	GPRED060C	251,749	85,295
Yukon Territory	61	GCCS061B	896,287	212,088	GPRED061C	636,773	183,518
Canada	00	GCCS000B	16,337,765	6,505,166	GPRED000C	13,904,563	6,018,441

## 9. *Census Metropolitan Areas / Census Agglomerations Digital Boundary File / Digital Cartographic File*

### 9.1 Content

The Census Metropolitan Areas / Census Agglomerations Digital Boundary File contains 164 polygons representing 158 regular and primary census metropolitan areas / agglomeration areas (CMAs/CAs and PCMA/PCAs).

Data are limited to CMA/CA and PCMA/PCA boundary polygons. Provincial boundaries are also included in the five exceptional cases where the CMA or CA crosses provincial boundaries. These are: Campbellton (CA 330), New Brunswick / Quebec; Pembroke (CA 515), Quebec / Ontario; Hawkesbury (CA 502), Quebec / Ontario; Lloydminster (CA 840), Saskatchewan / Alberta; and Ottawa - Hull (CMA 505), Quebec / Ontario.

More occurrences of CMAs, CAs, PCMA/PCAs and PCAs in multiple parts are found in Digital Cartographic Files due to the representation of shorelines and coastal islands. A breakdown of the number of CMAs/CAs and PCMA/PCAs and polygons by province/territory is provided below for both files.

Province / Territory	Digital Boundary File			Digital Cartographic File		
	Number of CMAs/CAs and PCMA/PCAs	Number of Polygons	Number of CMA/CA and PCMA/PCA in more than one part	Number of CMA/CA and PCMA/PCA	Number of Polygons	Number of CMA/CA and PCMA/PCA in more than one part
Newfoundland	6	6	0	6	7	1
Prince Edward Island	2	2	0	2	3	1
Nova Scotia	5	5	0	5	14	3
New Brunswick	6*	6	0	6*	7	1
Quebec	39*	39	0	39*	246	10
Ontario	52*	53	1	52*	128	13
Manitoba	4	4	0	4	4	0
Saskatchewan	9*	9	0	9*	9	0
Alberta	14*	14	0	14*	14	0
British Columbia	24	24	0	24	109	6
Yukon	1	1	0	1	1	0
Northwest Territories	1	1	0	1	1	0
Canada	158	164	1	158	543	35

Note: Numbers followed by an "\*" include at least one CMA/CA crossing provincial boundaries. In each of the 5 cases (listed above), the CMA/CA is counted in both provinces.

## 9.2 Data Quality Statement

The Census Metropolitan Areas / Census Agglomerations Digital Boundary File was created by aggregating EA polygons in the final EA Digital Boundary File as described in Section 2.3 *General Methodology*. Similarly, the Census Metropolitan Area / Census Agglomeration Digital Cartographic File was derived from the EA Digital Cartographic File. EAs were linked to the corresponding CMA/CA and PCMA/PCA code in the Geographic Attribute Data Base (GADB).

### 9.2.1 Consistency with other products

The Census Metropolitan Areas / Census Agglomerations Digital Cartographic File was created using the December 1996 version of the Digital Boundary File (refer to Section 3.3.1 Lineage). The Census Metropolitan Areas, Census Agglomerations and Census Tracts Reference Maps reflect the July 1996 Enumeration Area Digital Boundary File. Some boundary adjustments were made after the maps in this series were prepared for printing. However, there is only one occurrence (CSD of Prince George, CSDuid 5953023) in the CMA/CA/CT Reference Map Series where a CSD boundary has undergone an adjustment with a difference in land area greater than one square kilometre.

For more information on inconsistencies between digital files and reference maps refer to the Census Metropolitan Areas, Census Agglomerations and Census Tracts Reference Maps Reference Guide.

## 9.3 Other Considerations

When the boundaries are examined as a whole, four polygons can be seen as "holes" in the polygon coverage. These "holes" result from the convergence of neighbouring CMA/CAs but the exclusion of specific CSDs from either of the CMA/CAs. The four cases are:

- CSD 3523001 (Puslinch, TP) between the CMAs of Toronto, Hamilton, Kitchener and the CA of Guelph.
- CSD 3543023 (Oro-Medonte, TP) between the CMA of Toronto and the CAs of Barrie, Midland and Orillia.
- CSD 3537014 (Gosfield North, TP) between the CMA of Windsor and the CA of Leamington.
- CSD 5907035 (Summerland, DM) between the CAs of Kelowna and Penticton.

## 9.4 Technical Specifications

All products in the Digital Boundary File / Digital Cartographic File series are available in two formats: ARC/INFO® EXPORT and MapInfo® Version 4.0 for Windows.

The Census Metropolitan Areas / Census Agglomerations Digital Boundary and Digital Cartographic Files are available as standard products for the country as a whole.

All boundary files are named GCMA000t.EXT, "t" is an alphabetical identifier of the type of boundaries used. The separate map layer of lakes and rivers for this product is named GCMA000C.EXT. The file name extension (EXT) varies by format.



t = A for a digital boundary file

B for the main layer of the digital cartographic file (boundaries with shorelines)

The extension of the ARC/INFO® EXPORT files is E00. In MapInfo® for Windows, four files with different extensions are provided for each geographic coverage. These files can be opened directly (no requirement to import). The four extensions are: TAB, DAT, ID and MAP.

#### 9.4.1 Record Layout

The following table shows the format of the attributes contained on the boundary files and on the separate water layer.

Item Name	WIDTH	OUTPUT	TYPE	DECIMALS
AREA <sup>1</sup>	4	12	F	3
PERIMETER <sup>1</sup>	4	12	F	3
Username # <sup>1</sup>	4	5	B	0
Username-ID <sup>1</sup>	4	5	B	0
Items for boundary files				
CMAname	24	24	C	-
CMAuid	3	3	C	-
CMAtype	1	1	C	-
PCMAname	25	25	C	-
PCMAuid	3	3	C	-
PCMAtype	1	1	C	-
PRuid	2	2	C	-
Items for the separate water layer				
WATER	1	1	I	-
AREA_M2	8	12	F	-
PERIMETER_M	8	12	F	-

<sup>1</sup> Items included with ARC/INFO Export files only

#### Item Description

AREA	of the polygon - maintained by ARC/INFO®	(item not included in MapInfo files)
PERIMETER	of the polygon - maintained by ARC/INFO®	(item not included in MapInfo files)
username#	maintained by ARC/INFO® for internal processing	(item not included in MapInfo files)
username-ID	maintained by ARC/INFO® for internal processing	(item not included in MapInfo files)
CMAname	is the name of the census metropolitan area or census agglomeration	
CMAuid	uniquely identifies a census metropolitan area or census agglomeration	

<b>CMAtype</b>	is a one-character field identifying whether the unit is a consolidated census metropolitan area (A), a census metropolitan areas (B), a consolidated census agglomeration (C) or a census agglomeration (D)
<b>PCMAname</b>	is the name of the primary census metropolitan area or primary census agglomeration (if appropriate)
<b>PCMAuid</b>	uniquely identifies a primary census metropolitan area or primary census agglomeration
<b>PCMAtype</b>	is a one-character field identifying, if required, whether the unit is a primary census metropolitan area (E) or a primary census agglomeration (F)
<b>PRuid</b>	uniquely identifies a province or territory
<b>WATER</b>	value of "1" for water and, in ARC/INFO only, "0" for empty polygons (such as holes representing islands on a lake)
<b>AREA_M2</b>	is an approximate measurement of the area of the water feature in square metres
<b>PERIMETER_M</b>	is an approximate measurement of the perimeter of the water feature in metres

#### 9.4.2 File Sizes

	File name (boundaries)	File size ARC/INFO	File size MapInfo	File name (water)	File size ARC/INFO	File size MapInfo
<b>Canada</b>	GCMA000B	3,141,467	956,128	GCMA000C	5,101,318	1,186,013

## 10. *Census Tracts Digital Boundary File / Digital Cartographic File*

### 10.1 Content

The Census Tracts (CT) Digital Boundary File contains 4,226 polygons representing 4,223 census tracts (CTs) which correspond to the national coverage of the 43 tracted Census Metropolitan Areas or Census Agglomerations (CMA/CA). Three CTs have more than one part.

More occurrences of census tracts in multiple parts are found in Digital Cartographic Files due to the representation of shorelines and coastal islands.

**St. Lawrence River:** For most Digital Cartographic Files, the boundaries follow the shoreline of the St. Lawrence River and the St. Lawrence itself is not depicted as a polygon on the separate water layer. Thus the river belongs to the "outside" world, together with the oceans and the Great Lakes. This presents a unique situation for three census metropolitan areas (CMAs) in the province of Quebec. The St. Lawrence River runs across the CMAs of Québec, Trois-Rivières and Montréal. Consequently, the methodology described in section 3 resulted in these three CMAs being depicted in several parts (north and south shore of the St. Lawrence and islands) with nothing in between. Whereas the provincial files put these three CMAs in a broad context, the individual CMA coverages seemed "incomplete" without a polygon to illustrate the St. Lawrence. Therefore, a decision was made to treat the St. Lawrence as an in-land body of water for these three CMAs. This introduces a difference in the boundaries and water coverage between the provincial or national coverage and the three specific CMA coverages for the Enumeration Areas, Census Tracts and Census Subdivisions Digital Cartographic Files.

The following table shows the number of census tracts and polygons in each file for individual CMA/CA. The situation described above, regarding the special measure taken for the St. Lawrence River and the CMAs of Québec, Trois-Rivières and Montréal resulted in discrepancies in the number of polygons and the number of CTs in several parts. The numbers in the table relate to the CT provincial file. People using the three specific CMA coverages will not find any census tract depicted in several parts when the St. Lawrence River is included on the separate water layer.

CMA/CA	Digital Boundary Files			Digital Cartographic Files		
	Number of CTs	Number of Polygons	Number of CTs in more than one part	Number of CTs	Number of polygons	Number of CTs in more than one polygon
St. John's	41	41	0	41	42	1
Halifax	75	75	0	75	82	4
Moncton	24	24	0	24	24	0
Saint John	45	45	0	45	50	2
Chicoutimi - Jonquière	35	35	0	35	35	0
Québec	152	152	0	152	156	2
Sherbrooke	32	32	0	32	32	0
Trois-Rivières	34	34	0	34	41	2
Saint-Jean-sur-Richelieu	35	35	0	35	35	0
Ottawa - Hull (Quebec part)	51	51	0	51	51	0
Montréal	769	769	0	769	972	69
Ottawa - Hull (Ontario part)	166	166	0	166	166	0
Kingston	35	35	0	35	38	2
Belleville	35	35	0	35	35	0
Peterborough	23	23	0	23	23	0
Oshawa	49	49	0	49	51	1
Toronto	813	813	0	813	827	4
Hamilton	163	163	0	163	165	2
St. Catharines - Niagara	83	83	0	83	85	2
Kitchener	82	82	0	82	82	0
Brantford	21	21	0	21	21	0
Guelph	21	21	0	21	21	0
London	88	88	0	88	88	0
Windsor	59	59	0	59	62	3
Sarnia	24	24	0	24	29	2
Barrie	24	24	0	24	24	0
North Bay	21	21	0	21	21	0
Sudbury	38	38	0	38	38	0
Sault Ste. Marie	23	24	1	23	36	6
Thunder Bay	31	31	0	31	45	4
Winnipeg	158	158	0	158	158	0
Regina	49	49	0	49	49	0
Saskatoon	50	50	0	50	50	0
Lethbridge	21	21	0	21	21	0
Calgary	153	153	0	153	153	0
Red Deer	16	16	0	16	16	0
Edmonton	196	196	0	196	196	0
Kelowna	27	27	0	27	27	0
Kamloops	25	25	0	25	25	0
Abbotsford	29	29	0	29	29	0
Vancouver	299	300	1	299	340	9
Victoria	65	66	1	65	87	8
Nanaimo	20	20	0	20	27	3
Prince George	23	23	0	23	23	0
Canada	4,223	4,226	3	4,223	4,578	126

## 10.2 Comparison to the 1991 products

The 1996 Census Tracts Digital Cartographic File is quite different from the 1991 product. In 1991, all boundaries were modified to follow the shorelines found on Street Network Files. In 1996, only the shorelines forming the perimeter of Canada are cut in the main layer. Additional shorelines and water features are contained on the separate "water" layer. The impact of this different methodology is most notable in the Census Metropolitan Area of Ottawa - Hull. Users will need to display the reference water coverage layer to see the Ottawa River which separates the CMA into its Ontario and Quebec parts.

In 1991, the CT Digital Cartographic File was the only digital cartographic product to take shorelines and water features from the SNF. The census subdivisions and census divisions products were created using a different source for shorelines. In 1996, all standard products are consistent.

## 10.3 Data Quality Statement

The Census Tracts Digital Boundary File was created by aggregating EA polygons in the final EA Digital Boundary File as described in Section 2.3 *General Methodology*. Similarly, the Census Tracts Digital Cartographic File was derived from the EA Digital Cartographic File. EAs were linked to the corresponding census tract using the linkages of the Geographic Attribute Data Base (GADB).

## 10.4 Technical Specifications

All products in the Digital Boundary File / Digital Cartographic File series are available in two formats: ARC/INFO® EXPORT and MapInfo® Version 4.0 for Windows.

The Census Tracts Digital Boundary and Digital Cartographic Files are available as standard products for the country as a whole, individual provinces and the 43 tracted CMA/CAs.

All boundary files are named GCT\_nnnn.EXT, where "nnn" is a numerical code identifying the geographic coverage of the file and "t" is an alphabetical identifier of the type of boundaries used. The separate map layers of lakes and rivers for this product are named GCMAnnnC.EXT for individual Census Metropolitan Areas and tracted Census Agglomerations and GPREnnnC.EXT for national and provincial files. The file name extension (EXT) varies by format.

nnn = 000 for the national coverage

010 - 061 for individual provinces or territories

001 - 999 for individual census metropolitan areas or tracted census agglomerations.

t = A for a digital boundary file

B for the main layer of the digital cartographic file (boundaries with shorelines)

The extension of the ARC/INFO® EXPORT files is E00.

In MapInfo® for Windows, four files with different extensions are provided for each geographic coverage. These files can be opened directly (no requirement to import). The four extensions are: TAB, DAT, ID and MAP.

#### 10.4.1 Record Layout

The following table shows the format of the attributes contained on the boundary files and on the separate water layer.

Item Name	WIDTH	OUTPUT	TYPE	DECIMALS
AREA <sup>1</sup>	4	12	F	3
PERIMETER <sup>1</sup>	4	12	F	3
Username # <sup>1</sup>	4	5	B	0
Username-ID <sup>1</sup>	4	5	B	0
Items for boundary files				
CTname	7	7	C	-
CTuid	10	10	C	-
CMAuid	3	3	C	-
PRuid	2	2	C	-
Items for the separate water layer				
WATER	1	1	I	-
AREA_M2	8	12	F	0
PERIMETER_M	8	12	F	0

<sup>1</sup> Items included with ARC/INFO Export files only

#### Item Description

AREA	of the polygon - maintained by ARC/INFO®	(item not included in MapInfo files)
PERIMETER	of the polygon - maintained by ARC/INFO®	(item not included in MapInfo files)
username#	maintained by ARC/INFO® for internal processing	(item not included in MapInfo files)
username-ID	maintained by ARC/INFO® for internal processing	(item not included in MapInfo files)
CTname	is the numeric name of the census tract	
CTuid	uniquely identifies a census tract (composed of the CMAuid and the CTname)	

CMAuid	uniquely identifies a CMA/CA
PRuid	uniquely identifies a province
WATER	value of "1" for water and, in ARC/INFO only, "0" for empty polygons (such as holes representing islands on a lake)
AREA_M2	is an approximate measurement of the area of the water feature in square metres
PERIMETER_M	is an approximate measurement of the perimeter of the water feature in metres

## 10.4.2 File Sizes

CMA/CA	CMA/CA code	File name (boundaries)	File size ARC/INFO	File size MapInfo	File name (water)	File size ARC/INFO	File size MapInfo
St John's	001	GCT_001B	356,535	146,885	GCMA001C	439,891	99,482
Halifax	205	GCT_205B	260,749	108,379	GCMA205C	152,620	59,932
Moncton	305	GCT_305B	59,531	27,130	GCMA305C	66,622	32,333
Saint John	310	GCT_310B	171,383	59,953	GCMA310C	198,090	71,596
Chicoutimi - Jonquière	408	GCT_408B	89,083	34,083	GCMA408C	125,820	81,323
Québec	421	GCT_421B	290,429	97,658	GCMA421C	152,568	101,653
Sherbrooke	433	GCT_433B	66,609	21,202	GCMA433C	18,435	9,605
Trois-Rivières	442	GCT_442B	62,187	20,232	GCMA442C	23,476	12,115
Saint-Jean-sur-Richelieu	459	GCT_459B	64,965	17,699			
Montréal	462	GCT_462B	1,115,709	310,413	GCMA462C	474,701	313,209
Ottawa - Hull	505	GCT_505B	365,057	108,117	GCMA505C	784,841	360,018
Kingston	521	GCT_521B	81,745	31,011	GCMA521C	25,670	7,632
Belleville	522	GCT_522B	77,661	31,523	GCMA522C	20,446	11,603
Peterborough	529	GCT_529B	58,721	23,007	GCMA529C	46,180	24,965
Oshawa	532	GCT_532B	91,387	29,341	GCMA532C	44,701	23,092
Toronto	535	GCT_535B	1,162,537	295,217	GCMA535C	325,839	111,458
Hamilton	537	GCT_537B	267,541	71,843	GCMA537C	80,892	25,253
St. Catharines - Niagara	539	GCT_539B	230,321	67,123	GCMA539C	203,174	103,889
Kitchener	541	GCT_541B	133,721	38,424	GCMA541C	101,456	47,456
Brantford	543	GCT_543B	46,629	19,369	GCMA543C	38,977	18,384
Guelph	550	GCT_550B	38,695	15,785	GCMA550C	23,578	13,139
London	555	GCT_555B	167,147	45,242	GCMA555C	125,233	72,869
Windsor	559	GCT_559B	108,439	29,099			
Samia	562	GCT_562B	50,213	12,794	GCMA562C	8,609	2,974
Barrie	568	GCT_568B	44,991	15,354	GCMA568C	9,698	5,459
North Bay	575	GCT_575B	66,089	21,417	GCMA575C	92,886	47,144
Sudbury	580	GCT_580B	99,547	39,796	GCMA580C	145,341	53,051
Sault Ste. Marie	590	GCT_590B	79,349	19,935	GCMA590C	67,087	22,431
Thunder Bay	595	GCT_595B	106,909	27,831	GCMA595C	24,319	10,779
Winnipeg	602	GCT_602B	265,293	68,124	GCMA602C	76,348	47,818
Regina	705	GCT_705B	96,331	28,317	GCMA705C	17,050	7,582
Saskatoon	725	GCT_725B	85,007	24,248	GCMA725C	11,325	5,996
Lethbridge	810	GCT_810B	39,301	14,761	GCMA810C	22,822	6,558
Calgary	825	GCT_825B	265,759	77,717	GCMA825C	98,328	42,136
Red Deer	830	GCT_830B	61,449	22,306	GCMA830C	54,835	37,378
Edmonton	835	GCT_835B	355,627	111,646	GCMA835C	56,286	31,359
Kelowna	915	GCT_915B	115,225	61,003	GCMA915C	80,666	44,147
Kamloops	925	GCT_925B	79,595	28,181	GCMA925C	69,612	48,305
Abbotsford	932	GCT_932B	75,457	25,729	GCMA932C	66,688	50,665
Vancouver	933	GCT_933B	595,957	162,555	GCMA933C	389,611	200,133
Victoria	935	GCT_935B	264,815	75,341	GCMA935C	70,215	23,817
Nanaimo	938	GCT_938B	102,885	29,070			
Prince George	970	GCT_970B	48,443	18,911	GCMA970C	40,501	19,845
Canada	000	GCT_000B	8,484,067	2,356,439	GCT_000C	4,359,095	988,252



## 11. Urban Areas Digital Boundary File / Digital Cartographic File

### 11.1 Content

The Urban Areas (UA) Digital Boundary File contains 984 polygons representing the 929 UAs in Canada. Sixteen UAs have more than one part. The UA of Sechelt, British Columbia is the extreme case with 32 parts. All other situations were limited to 2 or 3 parts per UA.

Data are limited to UA boundary polygons. Provincial boundaries are also included in the five exceptional cases where the urban area crosses provincial boundaries. These are: Campbellton (UA 0122), New Brunswick / Quebec; Flin-Flon (UA 0282), Manitoba/Saskatchewan; Hawkesbury (UA 0365), Quebec / Ontario; Lloydminster (UA 0478), Saskatchewan / Alberta; and Ottawa - Hull (UA 0616), Quebec / Ontario.

More occurrences of urban areas in multiple parts are found in Digital Cartographic Files due to the representation of shorelines and coastal islands.

A breakdown of the number of urban areas and polygons by province/territory is provided below for both files.

Province / Territory	Digital Boundary File			Digital Cartographic File		
	Number of UAs	Number of Polygons	Number of UAs in more than one part	Number of UAs	Number of Polygons	Number of UAs in more than one part
Newfoundland	44	44	0	44	46	1
Prince Edward Island	7	7	0	7	7	0
Nova Scotia	38	38	0	38	38	0
New Brunswick	38*	39	1	38*	40	2
Quebec	228*	232	2	228*	398	11
Ontario	265*	269	4	265*	297	11
Manitoba	43*	45	2	43*	45	2
Saskatchewan	63*	64	1	63*	64	1
Alberta	103*	103	0	103*	103	0
British Columbia	97	135	6	97	177	10
Yukon	2	2	0	2	2	0
Northwest Territories	6	6	0	6	7	1
Canada	929	984	16	929	1,224	39

Note: Numbers followed by an "\*" include at least one Urban Area crossing provincial boundaries. In each of the 5 cases (described above), the UA is counted in both provinces.

### 11.2 Data Quality Statement

The Urban Areas Digital Boundary File was created by aggregating EA polygons in the final EA Digital Boundary File as described in Section 2.3 *General Methodology*. Similarly, the Urban Area Digital Cartographic File was derived from the EA Digital Cartographic File. EAs were linked to the corresponding urban area using the linkages of the Geographic Attribute Data Base (GADB).

### 11.3 Technical Specifications

All products in the Digital Boundary File / Digital Cartographic File series are available in two formats: ARC/INFO® EXPORT and MapInfo® Version 4.0 for Windows.

The Urban Area Digital Boundary and Digital Cartographic Files are available as standard products for the country as a whole.

All boundary files are named GUA\_000t.EXT, where "t" is an alphabetical identifier of the type of boundaries. The separate map layer of lakes and rivers for this product is named GUA\_000c.EXT. The file name extension (EXT) varies by format.

t = A for a digital boundary file

B for the main layer of the digital cartographic file (boundaries with shorelines)

The extension of the ARC/INFO® EXPORT files is E00.

In MapInfo® for Windows, four files with different extensions are provided for each geographic coverage. These files can be opened directly (no requirement to import). The four extensions are: TAB, DAT, ID and MAP.

### 11.3.1 Record Layout

The following table shows the format of the attributes contained on the boundary files and on the separate water layer.

Item Name	WIDTH	OUTPUT	TYPE	DECIMALS
AREA <sup>1</sup>	4	12	F	3
PERIMETER <sup>1</sup>	4	12	F	3
Username # <sup>1</sup>	4	5	B	0
Username-ID <sup>1</sup>	4	5	B	0
Items for boundary files				
UName	32	32	C	-
UAuid	4	4	C	-
UAtype	1	1	C	-
PRuid	2	2	C	-
Items for the separate water layer				
WATER	1	1	I	-
AREA_M2	8	12	F	0
PERIMETER_M	8	12	F	0

<sup>1</sup> Items included with ARC/INFO Export files only

#### Item Description

AREA of the polygon - maintained by ARC/INFO® (item not included in MapInfo files)

PERIMETER of the polygon - maintained by ARC/INFO® (item not included in MapInfo files)

username# maintained by ARC/INFO® for internal processing (item not included in MapInfo files)

username-ID maintained by ARC/INFO® for internal processing (item not included in MapInfo files)

UName is the name of the urban area

UAuid uniquely identifies an urban area

UAtype is a one-character field indicating the UA type

1 Urban core of a CMA/CA or PCMA/PCA

2 Urban fringe of a CMA/CA or PCMA/PCA

4 Urban area outside CMA/CA

PRuid uniquely identifies a province or territory

WATER value of "1" for water and, in ARC/INFO only, "0" for empty polygons (such as holes representing islands on a lake)

AREA\_M2 is an approximate measurement of the area of the water feature in square metres

PERIMETER\_M is an approximate measurement of the perimeter of the water feature in metres

## 11.3.2 File Sizes

	File name (boundaries)	File size ARC/INFO	File size MapInfo	File name (water)	File size ARC/INFO	File size MapInfo
<b>Canada</b>	GUA_000B	3,963,512	1,047,034	GUA_000C	2,060,290	780,364

## 12. Designated Places Digital Boundary File / Digital Cartographic File

### 12.1 Content

The Designated Places (DPL) Digital Boundary File contains 848 polygons representing the 828 DPLs in Canada. Seventeen DPLs have more than one part.

More occurrences of designated places in multiple parts are found in Digital Cartographic Files due to the representation of shorelines and coastal islands.

A breakdown of the number of designated places and polygons by province/territory is provided below for both files.

Province / Territory	Digital Boundary File			Digital Cartographic File		
	Number of DPLs	Number of Polygons	Number of DPLs in more than one part	Number of DPLs	Number of Polygons	Number of DPLs in more than one part
Newfoundland	77	77	0	77	88	8
Prince Edward Island	0	0	0	0	0	0
Nova Scotia	59	59	0	59	59	0
New Brunswick	172	173	1	172	174	2
Quebec	0	0	0	0	0	0
Ontario	38	42	3	38	55	3
Manitoba	52	58	4	52	58	4
Saskatchewan	166	170	4	166	170	4
Alberta	252	256	4	252	256	4
British Columbia	12	13	1	12	15	2
Yukon	0	0	0	0	0	0
Northwest Territories	0	0	0	0	0	0
Canada	828	848	17	848	875	27

### 12.2 Comparison to the 1991 products

The concept of designated places is new in 1996.

### 12.3 Data Quality Statement

The Designated Places Digital Boundary File was created by aggregating EA polygons in the final EA Digital Boundary File as described in Section 2.3 *General Methodology*. Similarly, the Designated Places Digital Cartographic File was derived from the EA Digital Cartographic File. EAs were linked to the corresponding Designated Place using the linkages of the Geographic Attribute Data Base (GADB).

### 12.3.1 Consistency with other products

Whole Designated Places are referred to in the Designated Places Digital Boundary File and Digital Cartographic File. This is consistent with all other products, except GeoRef. GeoRef refers to the census subdivision parts of designated places.

### 12.4 Technical Specifications

All products in the Digital Boundary File / Digital Cartographic File series are available in two formats: ARC/INFO® EXPORT and MapInfo® Version 4.0 for Windows.

The Designated Places Digital Boundary and Digital Cartographic Files are available as standard products for the country as a whole.

All boundary files are named GDPL000t.EXT, where "t" is an alphabetical identifier of the type of boundaries. The separate map layer of lakes and rivers for this product is named GDPL000C.EXT. The file name extension (EXT) varies by format.

t = A for a digital boundary file

B for the main layer of the digital cartographic file (boundaries with shorelines)

The extension of the ARC/INFO® EXPORT files is E00.

In MapInfo® for Windows, four files with different extensions are provided for each geographic coverage. These files can be opened directly (no requirement to import). The four extensions are: TAB, DAT, ID and MAP.

### 12.4.1 Record Layout

The following table shows the format of the attributes contained on the boundary files and on the separate water layer.

Item Name	WIDTH	OUTPUT	TYPE	DECIMAL
AREA <sup>1</sup>	4	12	F	3
PERIMETER <sup>1</sup>	4	12	F	3
Username # <sup>1</sup>	4	5	B	0
Username-ID <sup>1</sup>	4	5	B	0
Items for boundary files				
DPLname	68	68	C	-
DPLtype	3	3	C	-
DPLuid	5	5	C	-
PRuid	2	2	C	-
Items for the separate water layer				
WATER	1	1	I	-
AREA_M2	8	12	F	-
PERIMETER_M	8	12	F	-

<sup>1</sup> Items included with ARC/INFO Export files only

#### Item Description

AREA	of the polygon - maintained by ARC/INFO® (item not included in MapInfo files)
PERIMETER	of the polygon - maintained by ARC/INFO® (item not included in MapInfo files)
username#	maintained by ARC/INFO® for internal processing (item not included in MapInfo files)
username-ID	maintained by ARC/INFO® for internal processing (item not included in MapInfo files)
DPLname	is the name of the designated place
DPLtype	is a three-character field indicating the DPL type
LSD	Local Service District
CFA	Class IV Area
LSB	Local Service Board
NCM	Northern Community
OHM	Organized Hamlet
UNP	Unincorporated Place
MET	Métis Settlement
IST	Island Trust
DPLuid	uniquely identifies a designated place (composed of 2-digit province code and 3-digit DPL code)
PRuid	uniquely identifies a province or territory

**WATER** value of "1" for water and, in ARC/INFO only, "0" for empty polygons (such as holes representing islands on a lake)

**AREA\_M2** is an approximate measurement of the area of the water feature in square metres

**PERIMETER\_M** is an approximate measurement of the perimeter of the water feature in metres

#### 12.4.2 File Sizes

	File name (boundaries)	File size ARC/INFO	File size MapInfo	File name (water)	File size ARC/INFO	File size MapInfo
<b>Canada</b>	GDPL000B	1,806,285	493,033	GDPL000C	160,183	67,076



### 13. 1996 Census Forward Sortation Areas Digital Cartographic File

#### 13.1 About this product

The 1996 Census Forward Sortation Areas (FSA) Digital Cartographic File (DCF) depicts FSA (first three characters of the postal code) boundaries derived from postal codes captured from the 1996 Census questionnaires. The boundaries provide a spatial picture of FSAs *as reported by census respondents* and as such, may not correspond to the geographic coverage of FSAs as portrayed by other sources. The FSA DCF was created for the sole purpose of displaying postal code based data derived from the 1996 Census.

The census derived FSA boundaries were created by first analysing the postal codes reported on the census questionnaires to determine the most representative (i.e., dominant) FSA for each enumeration areas (EA). EAs dominated by the same FSA were then grouped together to form a census based FSA boundary.

Since there is no exact link between FSAs and EAs, regrouping EAs permits only the approximation of the reported FSA boundaries. Not all people declaring a given FSA are necessarily found within these EA based boundaries and, conversely, people reporting a different FSA may be included. Each FSA depicted in the 1996 Census FSA DCF is tagged with a "quality indicator" that provides an indication of the extent to which the boundaries reflect the true location of people reporting it.

Section 13.3, Data Quality, provides a description of the criteria established to create FSA boundaries from EAs and important information on the quality of the boundaries.

#### 13.2 Content

The 1996 Census Forward Sortation Area Digital Cartographic File contains boundaries for 1,438 FSAs. In total, census respondents reported 1,467 FSAs, 29 of which were too small or too dispersed to be represented given the methodology described below. The 1,438 FSAs portrayed on the file cover the whole country of Canada.

The number of forward sortation areas (FSAs) and FSA polygons by first character of the FSA is provided below. The inclusion of coastal islands caused a large number of FSAs to be represented in more than one part.

1996 Census Forward Sortation Areas Digital Cartographic File							
First letter of the FSA	Number of FSAs	Number of Polygons	Number of FSAs in more than one part	First letter of the FSA	Number of FSAs	Number of Polygons	Number of FSAs in more than one part
A	31	402	14	M	95	129	16
B	58	168	22	N	116	191	27
C	7	22	3	P	55	237	18
E	41	112	15	R	63	78	7
G	120	202	25	S	42	63	13
H	115	196	28	T	136	196	29
J	138	331	49	V	182	793	54
K	81	142	23	X	5	338	4
L	150	213	39	Y	3	11	2
Canada					1,438	3,824	388

### 13.3 Limitations

The forward sortation areas contained within this product are those reported by census respondents. Therefore, they do not constitute all valid forward sortation areas at the time of the 1996 Census (May 14, 1996). The postal code provided by the respondents may or may not be the same postal code assigned to their dwelling by Canada Post Corporation. For instance, a small percentage of respondents provided the postal code of a business building, likely their work address.

Postal codes were determined to be valid if they were on a list obtained from Canada Post Corporation for May 1996 and the postal code provided by the respondent was no more than one province or territory away from the respondent's regular place of residence. As a result, there are some households from one province included in a postal code of another province.

The FSA Digital Cartographic File was created to support the analysis of the data from the 1996 Census of Population. It may not be adequate for other purposes, especially if users are interested in business postal codes or linking information from other administrative sources.

As for all other Digital Cartographic Files, these FSA boundaries will not be precise if plotted at a larger scale than the scale of the source material used in their creation. In particular, the shorelines originally digitized at a scale of 1:2,000,000 (outside Street Network areas) will not support large scale mapping.

### 13.4 Data Quality

The purpose of this data quality statement is to provide detailed information for users to evaluate the suitability of the data for a particular use. Five fundamental components of a data quality statement are: lineage, positional accuracy, attribute accuracy, logical consistency and completeness.

### 13.4.1 Lineage

*Lineage includes descriptions of the source material from which the data were derived and the methods of derivation, including the dates of the source material and all transformations involved in producing the final digital product.*

#### 13.4.1.1 Sources

The 1996 Census FSA Digital Cartographic File was derived using the 1996 Enumeration Areas Digital Boundary and Digital Cartographic Files, as well as the "preliminary" and "final" counts of households by enumeration area and postal code. The preliminary counts were those available immediately after the postal codes reported on census questionnaires were first data captured. These postal codes were subsequently processed through a series of edit operations that identified missing or invalid responses and replaced them with a valid response to produce the "final" counts. The 1996 Census population and dwelling counts for postal codes and forward sortation areas are published in *Postal Code Counts* (catalogue no 92F0086XCB), a CD-ROM product. Users should refer to the Data Quality section of the *Postal Code Counts User's Guide* for more information on the validation of postal codes.

The creation of the 1996 Enumeration Areas Digital Cartographic and Digital Boundary File is described in details in section 3 of this reference guide.

#### 13.4.1.2 Method of derivation

This section describes the methods used to assign a forward sortation area to each enumeration area in the country. The grouping of EAs to form FSA boundaries follows the same procedure described in section 2.3 *General Methodology*.

Approximately 36 % of the 46,924 populated enumeration areas reported a single FSA. This left over 30,000 enumeration areas for which a choice between two or more (up to 13) FSAs was necessary. Generally, the FSA reported by the largest number of census respondents was assigned to the EA (the FSA is said to "dominate" the EA). The automated rule described below was used to assign a single FSA to the EAs with no population and EAs with no dominant FSA (e.g. an EA may contain 100 households, 50 of which reported one FSA and 50 of which reported another FSA). The analyses of the resulting assignment resulted in marginal modifications to the automated process on a case by case basis.

**Dominance in surrounding EAs:** There are 2,437 EAs which do not contain any population according to the 1996 Census. In these cases, a cluster of EAs was formed, consisting of the EA for which an assignment is required and adjacent EAs. The single FSA reported by the largest number of people in the cluster was assigned to the EA. This rule was also used for EAs with with no dominant FSA.

**Case by case assignment:** Fifty-six FSAs reported by census respondents never dominated an EA or cluster of EAs. Twenty-seven were assigned an FSA based on a case by case analysis. This was done to provide a boundary for all FSAs for which census data are available, that is FSAs with at least 100 people. The remaining 29 FSAs reported in the Census are not depicted in the file.

The analyses of the boundaries resulting from these assignments revealed that the strict application of the rule of dominance within the EA results in a large number of FSAs depicted in several parts (non-contiguous). This number was reduced by replacing the dominant FSA within selected EAs by the dominant FSA for the cluster made of adjacent EAs ( see *Dominance in surrounding EAs*). This modification was limited to 586 cases where the fragmentation involved small EAs or EAs reporting two or more FSAs in similar proportions (not a strong dominance).

**Note:** Due to time constraint, preliminary delineation of FSA boundaries began immediately after data capture of the information. The impact of the edit and imputation stage on specific FSAs was taken into consideration and appropriate adjustments were made to create the final product.

### 13.4.2 Positional Accuracy

*Positional Accuracy is the difference between the "true" position of a feature in the real world and the "estimated" position stored in the digital file.*

The purpose of the 1996 Census FSA Digital Cartographic File is to support analyses of census data for FSAs. No attempt was made to compare the EA-based FSA boundaries to FSA maps that are available from other sources.

For this product, the "true" position of an FSA boundary refers to the spatial distribution of census respondents reporting that FSA. The use of EAs for building blocks of FSAs approximates this "true" position.

This section presents two quality indicators for the delineation : coverage and dominance. These indicators are useful to assess the extent to which the delineation portrayed on the 1996 Census FSA Digital Cartographic File accurately illustrates the true location of people reporting that FSA.

A perfect delineation would be one where all people reporting a given FSA live within the boundaries created for that FSA and no one living within the boundaries reported another FSA.

The figure below illustrates a more typical situation, that is, one where not all people reporting a given FSA (FSA #1 in the example) live within the boundaries delineated for that FSA (solid line) and some people reporting other FSAs (2, 3 or 4 in the example) live within the delineated boundaries of FSA #1.

1 4 2	1 1 1	2 1 2
4	1 1 2	2 2 2
2 4 4	1 1 1	1 1 1
4 4	1 1 1	1 2 1
1 1	1 1 3	2 3 2
	1 1 1	2 2 2

—— boundaries of FSA1  
 ——— boundaries of nine EAs

The numbers in the figure refer to the FSA reported by a single census households (ranges from 1 to 4 in this example). This example illustrates 26 households within the boundaries of FSA #1, and 21 households outside the FSA.

*Coverage* measures the extent to which people reporting a given FSA live within the boundaries delineated for that FSA. In this example, the EA based delineation of FSA #1 includes 23 of the 25 people reporting FSA1, a *coverage* of 92%.

*Dominance* measures the extent to which people living within the EA based boundaries of a given FSA effectively reported that FSA. In this example, 23 of the 26 people living within the boundaries delineated for FSA #1 effectively reported that FSA, a *dominance* of 88%.

The following tables give the frequency distribution of these two measures. In both cases, the distribution is heavily concentrated in the 90 to 100 % range

Frequency distribution of the Coverage Quality Indicator		
Coverage (%)	Number of FSAs	%
no boundaries	29	2.0
0 - 20	2	0.1
20 - 40	3	0.2
40 - 60	21	1.4
60 - 80	48	3.3
80 - 90	96	6.6
90 - 100	1268	86.4

Frequency distribution of the Dominance Quality Indicator		
Dominance (%)	Number of FSAs	%
no boundaries	29	2.0
0 - 20	9	0.6
20 - 40	12	0.8
40 - 60	14	1.0
60 - 80	45	3.0
80 - 90	93	6.3
90 - 100	1265	86.2

Neither of these two measures gives a full appreciation of the positional accuracy of the delineation. For instance some boundaries may include all people reporting the FSA (100% coverage) but perhaps also a large population reporting another FSA (weak dominance). Similarly, an FSA may totally dominate its EA-based spatial representation (no other FSA reported), but several people reporting it may be missing from the delineation (under coverage).

A Composite Quality Indicator was calculated to help users appreciate the overall positional accuracy of the boundaries included in this product. The following table shows the frequency distribution of that Composite Quality Indicator. It illustrates the downward impact on the measure of quality when both *coverage* and *dominance* are considered. The majority of FSAs (88% or 1,285) have an overall quality indicator greater than 80%.

Frequency distribution of the Composite Quality Indicator			
Composite Indicator (%)	Number of FSAs	%	Cumulative %
90 - 100	977	66.6	66.6
80 - 90	308	21.0	87.6
60 - 80	83	5.7	93.3
40 - 60	33	2.2	95.5
20 - 40	20	1.4	96.9
0 - 20	17	1.2	98.0
no boundaries	29	2.0	100

The Composite Quality Indicator for each FSA is summarized by A, B or C and is included as an attribute of the boundaries on the 1996 Census Forward Sortation Areas Digital Cartographic File. In total, boundaries are available for 1,438 FSAs.

Letter	Range of Composite Indicator
A	greater than 90% less than, or equal to 100%
B	greater than 80% less than, or equal to 90%
C	greater than 0% less than, or equal to 80%

Users should be cautious in using boundaries with a quality indicator "C". These boundaries provide only a general indication of the location of the people reporting these FSAs. They may exaggerate or minimize the real extent of the spatial distribution of people reporting these FSAs. The following table shows the distribution of FSAs by Quality Indicator and first character of the FSA (generally identifies a province or territory).

First Digit of FSA	Province or Territory	Distribution of FSAs by Quality Indicator					% Distribution of FSAs by Quality Indicator			
		Total	A	B	C	N <sup>1</sup>	A%	B%	C%	N <sup>2</sup> %
A	Newfoundland	31	25	4	2		81	13	6	
B	Nova Scotia	58	36	14	8		62	24	14	
C	Prince Edward Island	7	3	3	1		43	43	14	
E	New Brunswick	43	22	9	10	2	51	21	23	5
G	Quebec	121	91	11	18	1	75	9	15	1
H	Quebec	121	82	26	7	6	68	21	6	5
J	Quebec	138	120	11	7		87	8	5	
K	Ontario	83	43	24	14	2	52	29	17	2
L	Ontario	155	105	34	11	5	68	22	7	3
M	Ontario	102	72	20	3	7	71	20	3	7
N	Ontario	117	62	37	17	1	53	32	15	1
P	Ontario	55	40	7	8		73	13	15	
R	Manitoba	63	43	9	11		68	14	17	
S	Saskatchewan	42	31	6	5		74	14	12	
T	Alberta	137	85	38	13	1	62	28	9	1
V	British Columbia	186	109	55	18	4	59	30	10	2
X	Yukon Territory	5	5				100			
Y	Northwest Territory	3	3				100			
Canada		1,467	977	308	153	29	67	21	10	2

<sup>1</sup> no boundaries available

#### 13.4.3 Consistency with Other Products

The 1996 Census Forward Sortation Area Digital Cartographic File is the only product available from Statistics Canada which provides a spatial distribution of the use of FSAs by census respondents. The digital cartographic file is fully consistent with the other products in the series, with the exception of the three generalized files, since all digital cartographic files described in this guide are based on enumeration areas. The product is also consistent with Street Network Files to the extent described in Section 3.3.5

Two standard data products will be available for FSAs from the 1996 Census. In particular, the publication *National Overview* carries a table featuring population and dwelling counts for forward sortation areas as reported by census

respondents. Data in this table are also available in the electronic *Postal Code Counts* CD-ROM product. Standard profiles and cross-tabulations of the population, by FSA, will also be available and users will be able to order custom tabulations.

### 13.5 Completeness

The 1996 Census Forward Sortation Areas Digital Cartographic File contains boundaries for 1,438 FSAs. In total, 1,467 FSAs were reported by at least one household in the 1996 Census. Only 4 of the 29 FSAs not included in the file were reported by at least 100 persons, the threshold for releasing most census data. These four FSAs are assigned to business buildings and the population reporting them is quite dispersed.

FSA	Published Population Count	FSA	Published Population Count	FSA	Published Population Count
E2R	11	K1P	74	M5X	11
E7C	30	L4V	69	M7A	11
G1A	19	L5P	3	M7Y	4
H3B	198	L5S	70	N3E	19
H4T	76	L5T	69	T5V	47
H4Y	4	L6E	39	V4G	82
H4Z	12	M5H	103	V6C	158
H5A	2	M5K	26	V7X	17
H5B	2	M5L	12	V7Y	9
K1A	112	M5W	45		

### 13.6 System Requirements

All products in the Digital Boundary File / Digital Cartographic File series are available

The 1996 Forward Sortation Area Digital Cartographic File is a standard product for the country as a whole and is available in ARC/INFO® EXPORT and MapInfo® Version 4.0 for Windows. It is named GFSA000B.EXT, and the associated separate water layer is GPREF000C.EXT. The file name extension (EXT) varies by format.

### 13.6.1 Record Layout

The following table shows the format of the attributes contained on the boundary files and on the separate water layer.

Item Name	WIDTH	OUTPUT	TYPE	DECIMAL S
AREA1	4	12	F	3
PERIMETER1	4	12	F	3
Username # 1	4	5	B	0
Username-ID 1	4	5	B	0
Items for boundary files				
FSA	3	3	C	-
IQ	1	1	C	-
Items for the separate water layer				
WATER	1	1	I	-
AREA_M2	8	12	F	0
PERIMETER_M	8	12	F	0

<sup>1</sup> Items included with ARC/INFO Export files only

#### Item Description

AREA	of the polygon - maintained by ARC/INFO® (item not included in MapInfo files)
PERIMETER	of the polygon - maintained by ARC/INFO® (item not included in MapInfo files)
username#	maintained by ARC/INFO® for internal processing (item not included in MapInfo files)
username-ID	maintained by ARC/INFO® for internal processing (item not included in MapInfo files)
FSA	First 3 characters of the postal code
IQ	Indicator of quality, values of A, B and C
WATER	value of "1" for water and, in ARC/INFO only, "0" for empty polygons (such as holes representing islands on a lake)
AREA_M2	is an approximate measurement of the area of the water feature in square metres
PERIMETER_M	is an approximate measurement of the perimeter of the water feature in metres

### 13.6.2 File Sizes

	File name (boundaries)	File size ARC/INFO	File size MapInfo	File name (water)	File size ARC/INFO	File size MapInfo
Canada	GFSA000B	15,246,156	5,679,500	GPFE000C	13,904,563	6,018,441



## 14. *Glossary of Terms*

Brief definitions of geographic terms and census concepts are presented here in summary form only. Users should refer to the *1996 Census Dictionary* (Catalogue No. 92-351-XPE) for the full definitions and additional remarks related to these concepts and definitions.

### *Block-face*

A block-face is one side of a city street between two consecutive street intersections. Block-faces are also formed when streets intersect other visible physical features (such as railroads, power transmission lines and rivers) and when streets intersect with *enumeration area* boundaries.

### *Census Agglomeration (CA)*

See the definition of *Census Metropolitan Area (CMA)*, *Census Agglomeration (CA)*, *Consolidated Census Metropolitan Area*, *Consolidated Census Agglomeration*, *Primary Census Metropolitan Area (PCMA)* and *Primary Census Agglomeration (PCA)*.

### *Census Consolidated Subdivision (CCS)*

A census consolidated subdivision (CCS) is a grouping of *census subdivisions*. Generally the smaller, more urban census subdivisions (towns, villages, etc.) are combined with the surrounding, larger, more rural census subdivision, in order to create a geographic level between the *census subdivision* and the *census division*.

### *Census Division (CD)*

Census division (CD) is the general term applied to areas established by provincial law which are intermediate geographic areas between the municipality (*census subdivision*) and the *province* level. Census divisions represent counties, regional districts, regional municipalities and other types of provincially legislated areas.

In Newfoundland, Manitoba, Saskatchewan and Alberta, provincial law does not provide for these administrative geographic areas. Therefore, census divisions have been created by Statistics Canada in cooperation with these provinces for the dissemination of statistical data. In the Yukon Territory, the census division is equivalent to the entire territory.

***Census Metropolitan Area (CMA), Census Agglomeration (CA), Consolidated Census Metropolitan Area, Consolidated Census Agglomeration, Primary Census Metropolitan Area (PCMA), Primary Census Agglomeration (PCA)***

The census metropolitan areas, census agglomerations, consolidated census metropolitan areas, consolidated census agglomerations, primary census metropolitan areas and primary census agglomerations are delineated using the same conceptual base. The overall concept for delineating these geographic areas is one of a large *urban area* together with adjacent urban and *rural areas* that have a high degree of social and economic integration with this urban area. *Metropolitan area* is a general term for all these areas. *Non-metropolitan area* is a term for all areas outside of the metropolitan area.

***Census Metropolitan Area (CMA)***

A census metropolitan area (CMA) is a very large *urban area* (known as the *urban core*) together with adjacent urban and rural areas (known as *urban* and *rural fringes*) that have a high degree of social and economic integration with the urban core. A CMA has an urban core population of at least 100,000, based on the previous census. Once an area becomes a CMA, it is retained as a CMA even if the population of its urban core declines below 100,000. All CMAs are subdivided into *census tracts*. A CMA may be consolidated with adjacent *census agglomerations* (CAs) if they are socially and economically integrated. This new grouping is known as a *consolidated CMA* and the component CMA and CA(s) are known as the *primary census metropolitan area (PCMA)* and *primary census agglomeration(s) [PCA(s)]*. A CMA may not be consolidated with another CMA.

***Census Agglomeration (CA)***

A census agglomeration (CA) is a large *urban area* (known as the *urban core*) together with adjacent urban and rural areas (known as *urban* and *rural fringes*) that have a high degree of social and economic integration with the urban core. A CA has an urban core population of at least 10,000, based on the previous census. However, if the population of the urban core of a CA declines below 10,000, the CA is retired. Once a CA attains an urban core population of at least 100,000, based on the previous census, it is eligible to become a CMA. CAs that have urban cores of at least 50,000, based on the previous census, are subdivided into *census tracts*. Census tracts are maintained for CAs even if the population of the urban cores subsequently fall below 50,000. A CA may be consolidated with adjacent CAs if they are socially and economically integrated. This new grouping is called a *consolidated CA* and the component CAs are called *primary census agglomerations (PCAs)*.

***Consolidated Census Metropolitan Area (Consolidated CMA)***

A consolidated census metropolitan area (consolidated CMA) is a grouping of one *census metropolitan area (CMA)* and adjacent *census agglomeration(s) CA(s)* that are socially and economically integrated. An adjacent CMA and CA can be consolidated into a single CMA (consolidated CMA) if the total commuting interchange between them is equal to at least 35% of the employed labour force living in the CA. Several CAs may be consolidated with a CMA; each CMA-CA combination is evaluated for inclusion. For example, the consolidated Toronto CMA is composed of the Toronto PCMA and the PCAs of Georgina, Milton, Halton Hills, Orangeville and Bradford West Gwillimbury.

***Consolidated Census Agglomeration (Consolidated CA)***

A consolidated census agglomeration (consolidated CA) is a grouping of adjacent *census agglomerations (CAs)* that are socially and economically integrated. Adjacent CAs are consolidated into a single CA (consolidated CA) if the total

commuting interchange between two CAs is equal to at least 35% of the employed labour force living in the smaller CA. Several CAs may be consolidated with a larger CA; each pair of CAs is evaluated for inclusion. For example, the consolidated Chatham CA is composed of the Chatham PCA and the Wallaceburg PCA.

#### ***Primary Census Metropolitan Area (PCMA)***

A *census metropolitan area* that is a component of a *consolidated census metropolitan area* is referred to as a primary census metropolitan area (PCMA).

#### ***Primary Census Agglomeration (PCA)***

A *census agglomeration* that is a component of a *consolidated census metropolitan area* or *consolidated census agglomeration* is referred to as the primary census agglomeration (PCA).

#### ***Census Subdivision (CSD)***

Census subdivision is the general term applying to municipalities (as determined by provincial legislation) or their equivalent (for example, Indian reserves, Indian settlements and unorganized territories).

In Newfoundland, Nova Scotia and British Columbia, the term also describes geographic areas that have been created by Statistics Canada in cooperation with the provinces as equivalents for municipalities for the dissemination of statistical data.

#### ***Census Tract (CT)***

Census tracts (CTs) are small geographic units representing urban or rural neighbourhood-like communities created in *census metropolitan areas* and *census agglomerations* (with an *urban core* population of 50,000 or more at the previous census).

CTs are initially delineated by a committee of local specialists (for example, planners, health and social workers, educators) in conjunction with Statistics Canada. Once a census metropolitan area (CMA) or census agglomeration (CA) has been subdivided into census tracts, the census tracts are maintained even if the urban core population of the CMA or CA subsequently declines below 50,000.

#### ***Consolidated Census Agglomeration***

See the definition of *Census Metropolitan Area (CMA)*, *Census Agglomeration (CA)*, *Consolidated Census Metropolitan Area*, *Consolidated Census Agglomeration*, *Primary Census Metropolitan Area (PCMA)*, *Primary Census Agglomeration (PCA)*.

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### ***Consolidated Census Metropolitan Area***

See the definition of *Census Metropolitan Area (CMA)*, *Census Agglomeration (CA)*, *Consolidated Census Metropolitan Area*, *Consolidated Census Agglomeration*, *Primary Census Metropolitan Area (PCMA)*, *Primary Census Agglomeration (PCA)*.

### ***Coordinate System***

A coordinate system is a mathematical method for specifying location. The coordinates can be spherical (latitude and longitude) or plane rectangular (such as Universal Transverse Mercator).

### ***Designated Place (DPL)***

Designated place refers to areas created by provinces to provide services and to structure fiscal arrangements for submunicipal areas which are often within unorganized areas.

The concept of a designated place generally applies to small communities for which there may be some level of legislation, but the communities fall below the criteria established for municipal status, that is, they are "submunicipal" or unincorporated areas.

### ***Digital Boundary Files (DBFs)***

Digital boundary files (DBFs) are computer files that depict the official boundaries of standard census geographic areas. The boundaries sometimes extend beyond shorelines into water.

### ***Digital Cartographic Files (DCFs)***

Digital cartographic files (DCFs) are computer files that depict boundaries of standard census geographic areas which have been modified to follow shorelines and to include lakes.

### ***Enumeration Area (EA)***

An enumeration area (EA) is the geographic area canvassed by one census representative. It is the smallest standard geographic area for which census data are reported. All the territory of Canada is covered by EAs.

### ***Federal Electoral District (FED)***

A federal electoral district refers to any place or territorial area entitled to elect a representative member to serve in the House of Commons (source: *Canada Elections Act*, 1990). There are 295 FEDs in Canada according to the 1987 Representation Order and there are 301 FEDs in Canada according to the 1996 Representation Order.

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### ***Geographic Code***

A geographic code is a unique number used to identify and access standard geographic areas for the purposes of data storage, retrieval and display.

### ***Geographic Reference Date***

The geographic reference date is a date determined by Statistics Canada for the purpose of finalizing the geographic framework for which census data will be collected, tabulated and reported. For the 1996 Census, the geographic reference date is **January 1, 1996**.

### ***Lambert Conformal Conic***

The Lambert Conformal Conic projection is widely used for general maps of Canada at small scales. It provides good directional and shape relationships for mid-latitude regions having a mainly east-to-west extent. Standard parallels at 49 degrees North and 77 degrees North are most commonly used. Scale is correct along the standard parallels only.

### ***Land Area***

Land area refers to the area in square kilometres of the land-based portions of the census geographic areas.

### ***Latitude/Longitude***

Latitude and longitude is a system of measuring location on the surface of the earth which recognizes that the earth is spherical. Latitude is the angle north or south of the equator, ranging from zero (0) degrees at the equator to ninety (90) degrees at the poles. Longitude is the angle east or west of the prime meridian (which runs through Greenwich, England), ranging from zero (0) degrees at the prime meridian to 180 degrees. For the land mass of Canada, latitudes range from roughly 42 to 83 degrees north of the equator and longitudes range from roughly 52 to 141 degrees west of the prime meridian. Latitude and longitude are often referred to as geographic coordinates.

Latitude/longitude coordinates are convenient for transferring and disseminating spatial digital data, but maps of Canada should not be plotted using latitude and longitude coordinates. The *digital boundary files* (DBFs), digital boundary files and *street network files* (SNFs) are disseminated with latitude/longitude coordinates.

### ***Map Projection***

A map projection is both the process and result of transforming positions on the spherical surface of the earth onto a plane (flat) surface.

**Primary Census Agglomeration (PCA)**

See the definition of *Census Metropolitan Area (CMA)*, *Census Agglomeration (CA)*, *Consolidated Census Metropolitan Area*, *Consolidated Census Agglomeration*, *Primary Census Metropolitan Area (PCMA)*, *Primary Census Agglomeration (PCA)*.

**Primary Census Metropolitan Area (PCMA)**

See the definition of *Census Metropolitan Area (CMA)*, *Census Agglomeration (CA)*, *Consolidated Census Metropolitan Area*, *Consolidated Census Agglomeration*, *Primary Census Metropolitan Area (PCMA)*, *Primary Census Agglomeration (PCA)*.

**Province/Territory**

Province and territory refer to the major political divisions of Canada. From a statistical point of view, they are a basic unit for which data are tabulated and cross-classified. The ten provinces combined with the two territories cover the complete country.

**Reference Map**

Census reference maps show the location of the geographic areas for which census data are tabulated and disseminated. The main information depicted includes the boundaries, names and codes of census geographic areas, and major physical and cultural features such as roads, railroads, coastlines, rivers and lakes.

**Representative Point**

A representative point is a single point that represents a linear feature (*block-face*) or an areal feature (*enumeration area*). The point's location generally indicates either dwelling concentrations or centrality.

**Rural Area**

Rural areas are sparsely populated lands lying outside *urban areas*.

**Standard Geographical Classification (SGC)**

The Standard Geographical Classification (SGC) is Statistics Canada's official classification of geographic areas in Canada. The SGC provides unique numeric identification (codes) for three types of geographic areas. These are *provinces and territories*, *census divisions (CDs)* and *census subdivisions (CSDs)*. The three geographic areas are hierarchically related.

### ***Street Network Files (SNFs)***

The street network files (SNFs) are digital files representing the street network for most large urban centres in Canada. The files also contain other visible physical and cultural features (such as hydrography, railroads, pipelines) and attribute information (for example, street and hydrographic names, and address ranges for streets with assigned addresses).

### ***Urban Area (UA)***

Urban areas have minimum population concentrations of 1,000 and a population density of at least 400 per square kilometre, based on the previous census population counts. All territory outside urban areas is considered rural. Taken together, urban and rural areas cover all of Canada.

### ***Urban Core, Urban Fringe and Rural Fringe***

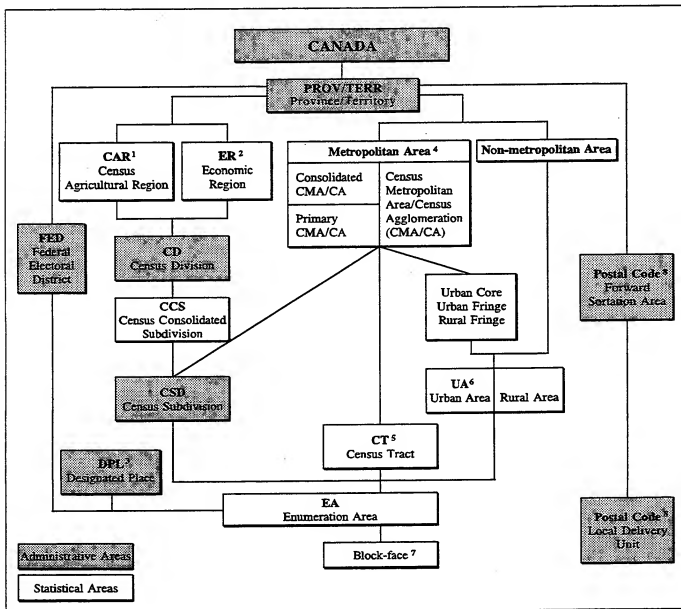
The urban core, urban fringe and rural fringe distinguish between central and peripheral urban and rural areas within a *census metropolitan area (CMA)*, *primary census metropolitan area (PCMA)*, *census agglomeration (CA)* or *primary census agglomeration (PCA)*.

Urban core is a large *urban area* around which a CMA or a CA is delineated. The urban core must have a population (based on the previous census) of at least 100,000 in the case of a CMA, or between 10,000 and 99,999 in the case of a CA.

Urban fringe is the urban area within a CMA or CA that is not contiguous to the urban core.

Rural fringe is all territory within a CMA or CA not classified as urban core or urban fringe.

## Appendix A. Hierarchy of National, Metropolitan and Postal Code Geographic Units, 1996



<sup>1</sup> Census agricultural regions in Saskatchewan are made up of census consolidated subdivisions.

<sup>2</sup> Economic regions in Ontario are made up of municipalities (census subdivisions).

<sup>3</sup> Currently there are no designated places in Prince Edward Island, Quebec, Yukon Territory and Northwest Territories.

<sup>4</sup> Five CMAs/CAs cross provincial boundaries.

<sup>5</sup> All CMAs and only CAs with urban core population of 50,000 or more at the previous census have census tracts.

<sup>6</sup> Five UAs cross provincial boundaries.

<sup>7</sup> Only in areas covered by street network files (SNFs).

<sup>8</sup> The postal code is captured as provided by the respondent on all the questionnaires for 1996. Although shown and treated as part of the geography hierarchy, strictly speaking, it is not a geographic unit and, therefore, there is no exact relationship between postal codes and enumeration areas.



## Appendix B. List of Water EAs, Ship EAs and Oil Rigs

### Water EAs on DBF but not on DCF (14)

10 006 012  
10 006 116  
10 006 425  
10 006 426  
10 007 131  
13 005 061  
13 005 171  
24 045 001  
35 029 259  
35 083 017  
35 084 301  
59 004 202  
59 006 411  
61 002 217

### Water EAs on DCF (7)

24 058 055  
35 068 069  
46 004 166  
46 004 167  
59 002 410  
59 017 506  
59 018 058

### Populated water EAs

35 048 071  
59 006 469

### Oil Rig/Tanker EAs

12 008 018  
12 008 019

### Ship EAs

10 002 072 24 057 273  
10 002 214 24 072 374  
10 006 451 35 006 027  
10 006 471 35 007 180  
11 003 028 35 007 403  
12 007 108 35 008 074  
12 008 187 35 021 268  
12 008 319 35 027 124  
13 001 123 35 034 118  
13 010 373 35 037 273  
13 010 374 35 041 121  
24 010 022 35 048 051  
24 013 079 35 054 151  
24 017 118 35 061 268  
24 017 119 35 064 238  
24 018 362 35 070 263  
24 023 120 35 070 264  
24 023 123 35 073 065  
24 024 021 35 084 463  
24 024 022 35 084 464  
24 031 012 59 005 028  
24 031 453 59 029 266  
24 042 120 59 032 018  
24 043 022 59 032 019  
24 043 274 59 032 022  
24 055 223

## Appendix C. Enumeration area representative point and ARC/INFO label points

### EA Representative Point

Statistics Canada defines a point in each enumeration area (EA) for the purpose of assigning aggregate data to that point for data retrieval, data analysis or statistical mapping. This point is called the EA representative point. It is defined as a pair of coordinate values (x,y) which is located by the following methods:

1. For EAs within Street Network File coverage, representative points are computed by an automated method that locates the point roughly in the visual centre of the land-based portion of the EA. If an EA is in multiple parts, the representative point is located, when possible, in the portion with the largest number of occupied private dwellings. However, in some cases, the representative point is located in the EA portion having the largest land area.
2. For EAs outside SNF coverage, representative points are located by a manual procedure based on a visual inspection of building and/or street patterns on EA reference maps. The representative point is located, when possible, within a predominant cluster of buildings and/or streets. If there is no predominant cluster, then the point is located between two or more clusters. In the absence of any cluster, the point is placed at the visual centre of the EA. If an EA is in multiple parts, the point is located in the portion with the largest number of dwellings. The representative point is normally located in the land-based portion of the EA.

All EA representative points are guaranteed to fall within the appropriate EA using an automated topology check. The method of derivation of these points assures that they are 100% consistent with all of the Digital Boundary Files (i.e. if the points are plotted as an additional layer with the Digital Boundary Files, the points will fall in the correct boundary polygon).

The (x,y) coordinates of the EA representative points are maintained in the Geography Attribute Data Base and are also contained in GeoRef, an electronic product with data and software. The points are also included on the Postal Code Conversion File as point locators for postal codes in small urban and rural areas. (Contact your nearest Statistics Canada Regional Reference Centre for more information on these products.)

### ARC/INFO® Polygon "Label Points"

ARC/INFO® automatically computes and uses one point within each polygon for plotting polygon attributes (e.g. the geographic code or name). This point is called the ARC/INFO® "label point", and is located within each polygon at a point suitable for label or symbol placement (an approximation of the visual centre).

In the EA Digital Boundary File, the coordinates of the ARC/INFO® "label point" have been replaced by the coordinates of the EA representative points. This will have an impact when plotting with ARC/INFO® in areas not covered by the Street Network File, since the attribute information may not appear at the visual centre of the polygon as might be expected.

## Appendix D. Census Subdivision Types by Province and Territory, 1996

Census subdivision type		Total	N.B.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.
BOR Borough		1	-	-	-	-	-	1	-	-	-	-	-	-
C City - Cité		145	3	2	2	7	2	51	5	13	15	43	1	1
CC Chartered Community		2	-	-	-	-	-	-	-	-	-	-	-	2
CM County (Municipality)		28	-	-	-	-	-	-	-	-	28	-	-	-
COM Community		163	130	33	-	-	-	-	-	-	-	-	-	-
CT Canton (Municipalité de)		88	-	-	-	-	88	-	-	-	-	-	-	-
CU Cantons unis (Municipalité de)		8	-	-	-	-	8	-	-	-	-	-	-	-
DM District Municipality		50	-	-	-	-	-	-	-	-	-	50	-	-
HAM Hamlet		36	-	-	-	-	-	-	-	-	-	-	2	34
ID Improvement District		10	-	-	-	-	-	2	-	-	8	-	-	-
IGD Indian Government District		2	-	-	-	-	-	-	-	-	-	2	-	-
LGD Local Government District		21	-	-	-	-	-	-	21	-	-	-	-	-
LOT Township and Royalty		67	-	67	-	-	-	-	-	-	-	-	-	-
M Municipalité		557	-	-	-	-	557	-	-	-	-	-	-	-
MD Municipal District		49	-	-	12	-	-	-	-	-	37	-	-	-
NH Northern Hamlet		12	-	-	-	-	-	-	-	12	-	-	-	-
NT Northern Town		2	-	-	-	-	-	-	-	2	-	-	-	-
NV Northern Village		13	-	-	-	-	-	-	-	13	-	-	-	-
P Paroisse (Municipalité de)		344	-	-	-	-	344	-	-	-	-	-	-	-
PAR Parish		152	-	-	-	152	-	-	-	-	-	-	-	-
R Indian Reserve - Réserve indienne		996	1	4	24	19	30	140	77	120	88	487	4	2
RC Rural Community		1	-	-	-	1	-	-	-	-	-	-	-	-
RGM Regional Municipality		1	-	-	1	-	-	-	-	-	-	-	-	-
RM Rural Municipality		404	-	-	-	-	-	-	106	298	-	-	-	-
RV Resort Village		42	-	-	-	-	-	-	-	42	-	-	-	-
S-E Indian Settlement - Établissement indien		33	-	-	-	-	5	10	4	1	4	3	6	-
SA Special Area		3	-	-	-	-	-	-	-	-	3	-	-	-
SCM Subdivision of County Municipality		38	-	-	38	-	-	-	-	-	-	-	-	-
SET Settlement		31	-	-	-	-	-	-	-	-	-	-	13	18
SM Specialized Municipality		2	-	-	-	-	-	-	-	-	2	-	-	-
SRD Subdivision of Regional District		71	-	-	-	-	-	-	-	-	-	71	-	-
SUN Subdivision of Unorganized		91	91	-	-	-	-	-	-	-	-	-	-	-
SV Summer Village		54	-	-	-	-	-	-	-	-	54	-	-	-
T Town		685	156	7	33	28	-	147	36	145	111	14	3	5
TI Terre inuite		10	-	-	-	-	10	-	-	-	-	-	-	-
TP Township		468	-	-	-	-	-	468	-	-	-	-	-	-
TR Terres réservées		9	-	-	-	-	9	-	-	-	-	-	-	-
UNO Unorganized - Non organisé		152	-	-	-	-	112	20	11	2	-	-	2	5
V Ville		257	-	-	-	-	257	-	-	-	-	-	-	-
VC Village cri		8	-	-	-	-	8	-	-	-	-	-	-	-
VK Village naskapi		1	-	-	-	-	1	-	-	-	-	-	-	-
VL Village		863	-	-	-	76	154	108	38	322	117	43	4	1
VN Village nordique		14	-	-	-	-	14	-	-	-	-	-	-	-



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## Geography Products and Services

This section provides brief descriptions of Geography products and services related to the 1996 Census. For additional details, contact the nearest Statistics Canada Regional Reference Centre.

### General Reference Products

#### 92F0085XCB GeoRef

GeoRef is a powerful data retrieval and tabular output tool with software and data on a CD-ROM. GeoRef allows users to explore the links between all standard levels of geography and to determine geographic codes, names, and population and dwelling counts. In addition to the standard census areas, GeoRef provides EA correspondence data (for 1996 census EAs and 1991 EAs) and an EA reference map listing that facilitates identification of appropriate EA reference maps.

### Reference Maps

Reference maps identify census geographic areas and assist users in locating boundaries, allowing them to relate census data to actual physical locations. Over 7,500 reference maps are available for geographic areas that range in size from enumeration areas (the census collection unit) to federal electoral districts (Members of Parliament's ridings), from census tracts (neighbourhoods) to census agglomerations and census metropolitan areas (large urban centres), and from census subdivisions (municipalities) to census divisions (counties). Reference maps are available individually or as sets.

#### 92F0087XPB Federal Electoral Districts/Enumeration Areas (FED/EA) Reference Maps (1987 Representation Order)

These reference maps show 1996 Census enumeration areas by federal electoral district. The federal electoral district boundaries are based on the 1987 Representation Order which was in effect on Census Day (May 14, 1996). These FED/EA maps are designed for the general reference of EA boundaries. For more specific identification of enumeration areas, users should refer to the more detailed EA Reference Maps for Large Urban (92F0090XPB), Small Urban (92F0088XPB) and Rural (92F0091XPB) areas. The FED/EA maps are reproduced on demand.

#### 92F0090XPB Large Urban Enumeration Areas (EA) Reference Maps

These black and white EA reference maps cover all 25 census metropolitan areas (CMAs) and the 18 census agglomerations (CAs) that are in the Census Tract Programme. Approximately 4,200 maps - generally one map per census tract - show enumeration area (EA) boundaries and codes on a background of detailed street networks and other visible features. Also shown on the maps are census tract, census subdivision, federal electoral district and CMA or CA boundaries. These maps are reproduced on demand. Package prices are available when all Large Urban (92F0090XPB), Small Urban (92F0088XPB) and Rural (92F0089XPB) EA Reference Maps for Canada or Provinces and Territories are purchased together.

#### 92F0088XPB Small Urban Enumeration Areas (EA) Reference Maps

Approximately 870 reference maps cover smaller urban municipalities (census subdivisions) not in the Census Tract Programme. The maps depict enumeration area (EA) boundaries and codes. Federal electoral districts are also shown

on these maps. The size and scale of the maps vary, depending on the area covered. These maps are reproduced on demand. Package prices are available when all Large Urban (92F0090XPB), Small Urban (92F0088XPB) and Rural (92F0089XPB) EA Reference Maps for Canada or Provinces and Territories are purchased together.

#### **92F0091XPB Rural Enumeration Areas (EA) Reference Maps**

Approximately 2,400 maps depict enumeration area boundaries and codes in rural areas of Canada. Also shown are boundaries for census subdivisions, census divisions, federal electoral districts, census metropolitan areas and tracted census agglomerations. The maps, based on Natural Resources Canada's national topographic series, are at a scale of 1:50,000 or 1:250,000 for the 10 provinces and at a scale of 1:1,000,000 for Yukon Territory and 1:4,000,000 for Northwest Territories. These maps are reproduced on demand. Package prices are available when all Large Urban (92F0090XPB), Small Urban (92F0088XPB) and Rural (92F0089XPB) EA Reference Maps for Canada or Provinces and Territories are purchased together.

#### **92F0089XPB Census Divisions and Census Subdivisions (CD/CSD) Reference Maps: Individual Maps**

A total of 21 provincial maps showing the boundaries, names and codes for census divisions (areas such as counties and regional districts) and census subdivisions (such as cities, municipalities, towns, villages, other local municipal entities, townships and Indian reserves) are available for sale individually. The maps also show the boundaries for census metropolitan areas and census agglomerations. Each province is covered by one to four maps, with scales ranging from 1:375,000 to 1:6,000,000. The maps have the same general look as in 1991, although they have been produced using computer-assisted technology from digital geographic databases. The reference information, including water bodies, major roads and railroads, comes from the Digital Chart of the World (DCW).

**Note:** The entire set of provincial maps are available in the publication, Standard Geographical Classification. Volume II (Catalogue No. 12-572-XPB). Also included in the publication are three maps of Canada at 1:10,000,000 scale, one showing census divisions, one showing economic regions, and one showing point locations of census metropolitan areas and census agglomerations.

#### **92-354-XPB Census Metropolitan Areas, Census Agglomerations and Census Tracts (CMA/CA/CT) Reference Maps**

This publication includes reference maps of all census metropolitan areas (55 maps covering 25 CMAs) and census agglomerations with census tracts (29 maps covering 18 CAs). The maps show boundaries and names of the census tracts, census subdivisions, primary census metropolitan areas and primary census agglomerations which make up the CMAs/CAs, as well as the urban core, urban fringe and rural fringe. Also shown are rivers, lakes, railroad tracks, provincial boundaries and other significant features. The map scales range from 1:25,000 to 1:2,000,000. The publication also includes a Canada map (1:10,000,000 scale) showing point locations of census metropolitan areas and census agglomerations in 1996.

#### **92F0092XPB Census Metropolitan Areas, Census Agglomerations and Census Tracts (CMA/CA/CT) Reference Maps - Individual Maps**

Individual reference maps for census metropolitan areas (55 maps covering 25 CMAs) and census agglomerations with census tracts (29 maps covering 18 CAs) are available. The maps show boundaries and names of the census tracts, census subdivisions, primary census metropolitan areas and primary census agglomerations which make up the

CMAs/CAs, as well as the urban core, urban fringe and rural fringe. Also shown are rivers, lakes, railroad tracks, provincial boundaries and other significant features. The map scales range from 1:25,000 to 1:2,000,000.

Note: The entire set of maps is available in the publication *Census Metropolitan Areas, Census Agglomerations and Census Tracts. Reference Maps* (Catalogue No. 92-354-XPB).

### ***Population and Dwelling Counts***

Population and dwelling counts from the 1996 Census are available in a variety of formats and geographic breakdowns. In addition to the publication and CD-ROM described below, population and dwelling counts are available in GeoRef (92F0085XCB) and the Block-face Data File (92F0026XDB).

#### **93-357-XPB A National Overview. Population and Dwelling Counts**

This publication provides population and dwelling counts established by the 1996 Census of Canada. The levels of geography covered are: provinces and territories, federal electoral districts (1987 Representation Order), census divisions, census subdivisions, designated places, census metropolitan areas and census agglomerations, urban and rural areas. The geographic boundaries of these areas are those that were in force on January 1, 1996 (geographic reference date for the 1996 Census of Canada). The publication also includes population and dwelling counts for forward sortation areas (first three characters of the postal code) as reported by census respondents on Census Day (May 14, 1996).

#### **92F0086XCB Postal Code Counts**

Postal Codes Counts is a new product for 1996 that contains population and dwelling counts for all six-character postal codes reported by respondents. The population and dwelling counts are provided by individual postal code, by forward sortation area (FSA - first three characters of the six-character postal code) and by province or territory. The data are provided with Windows™-based software that enables users to perform simple data manipulations such as searching the data set for specific postal codes, importing groups of postal codes for which counts are required and exporting groupings of postal codes. Documentation and reference material are contained in electronic form on the CD-ROM.

### ***Digital Boundary Files and Digital Cartographic Files***

Digital Boundary Files (DBFs) portray the official boundaries used for 1996 Census collection and, therefore, often extend as straight lines into bodies of water. In Digital Cartographic Files (DCFs), these boundaries were modified to follow the coastlines and shorelines on the perimeter of Canada's land mass, including major islands. The DCFs also include a separate map layer showing lakes and some rivers and estuaries. This "water" layer can be used for additional reference purposes when mapping or displaying the boundaries. DCFs provide a framework for thematic mapping and geographic analysis that are possible using commercially available geographic information systems (GIS) or other mapping software. DBFs may not be suitable for mapping or display where realistic shoreline is required. The DCFs are available by standard packages and prices; DBFs are available on request for the same price.

#### **92F0029XDE Provinces and Territories Digital Boundary File/Digital Cartographic File**

The Provinces and Territories Digital Boundary File (DBF) and Digital Cartographic File (DCF) are two of a series of products that depict boundaries of standard geography levels. The boundaries of the provinces and territories were



generalised to meet the requirements of most desk-top mapping packages. Consequently, this product is not consistent with others in the series. The Provinces and Territories DCF is available as a standard package for Canada.

**92F0030XDE Federal Electoral Districts (1987 Representation Order) Digital Boundary File/Digital Cartographic File**

The Federal Electoral Districts (1987 Representation Order) Digital Boundary File and Digital Cartographic File were created by aggregating the component EA boundaries from the 1996 Census. They may differ slightly from the Digital Boundary File based on 1991 enumeration areas (92F0070XDB). The Federal Electoral Districts Digital Cartographic File is a new product and is available in two versions. The boundaries of the first version are consistent with all other levels of standard geography. A more generalised version is also available for small scale mapping of the country as a whole. The two versions of the FED DCF are available as a standard package for Canada.

**92F0031XDE Federal Electoral Districts (1996 Representation Order) Digital Cartographic File**

The Federal Electoral Districts (1996 Representation Order) Digital Cartographic File depicts the boundaries of the Federal Electoral Districts (FEDs) according to the 1996 Representation Order. Since this is not a standard level of geography for the 1996 Census, the cartographic file was created with a different methodology and, therefore, is not entirely consistent with other files in the series. Users should be aware that the FED boundaries used for the taking of the 1996 Census were based on the 1987 Representation Order. The 1996 representation order was proclaimed on January 8, 1996 and is in force on the first dissolution of Parliament that occurs at least one year after its proclamation. The Federal Electoral Districts (1996 Representation Order) DCF is available as a standard package for Canada.

**92F0032XDE Census Divisions Digital Boundary File/Digital Cartographic File**

The Census Divisions Digital Boundary File (DBF) and Digital Cartographic File (DCF) are two of a series of products that depict boundaries of standard geography levels. The Census Divisions DCF is available in two versions. The boundaries of the first version are consistent with all other levels of standard geography. A more generalised version is also available for small scale mapping of the country as a whole. The two versions of the Census Divisions DCFs are available as a standard package for Canada.

**92F0033XDE Census Consolidated Subdivisions Digital Boundary File/Digital Cartographic File**

The Census Consolidated Subdivisions Digital Boundary (DBF) and Digital Cartographic File (DCF) are two of a series of products that depict boundaries of standard geography levels. Census Consolidated Subdivisions DCFs are available as standard packages for Canada and the provinces and territories.

**92F0034XDE Census Subdivisions Digital Boundary File/Digital Cartographic File**

The Census Subdivisions Digital Boundary File (DBF) and Digital Cartographic File (DCF) are two of a series of products that depict boundaries of standard geography levels. The Census Subdivisions DCF is available as a standard package for Canada, provinces and territories, census metropolitan areas (CMAs) and census agglomerations (CAs) with census tracts.

**92F0035XDE Census Metropolitan Areas/Census Agglomerations Digital Boundary File/Digital Cartographic File**

The 1996 Census Metropolitan Areas/Census Agglomerations Digital Boundary File (DBF) and Digital Cartographic File (DCF) are two of a series of products that depict boundaries of standard geography levels. The Census Metropolitan Areas/Census Agglomerations DCF is available as a standard package for Canada.

**92F0036XDE Census Tracts Digital Boundary File/Digital Cartographic File**

Users of the 1991 Census Tracts Digital Cartographic File will notice a major difference between the 1991 and the 1996 product. In 1991, all bodies of water were integrated with the boundaries on a single map layer. The 1996 boundaries follow the coastlines and shorelines on the perimeter of Canada's land mass, including major islands. Users can see the remaining shorelines (in-land bodies of water) by overlaying the separate "water" layer. The 1996 Census Tracts DCFs are consistent with all other levels of standard geography. This was not case in 1991. The Census Tracts DCFs are available as standard packages for Canada, the provinces, census metropolitan areas and census agglomerations with census tracts.

**92F0037XDE Urban Areas Digital Boundary File/Digital Cartographic File**

The Urban Areas Digital Boundary File (DBF) and Digital Cartographic File (DCF) are two of a series of products that depict boundaries of standard geography levels. The Urban Areas DCF is available as a standard package for Canada.

**92F0038XDE Designated Places Digital Boundary File/Digital Cartographic File**

The Designated Places Digital Boundary File (DBF) and Digital Cartographic File (DCF) are two of a series of products that depict boundaries of standard geography levels. Designated places are a new standard geography level for 1996. The Designated Places DCF is available as a standard package for Canada.

**92F0039XDE 1996 Census Forward Sortation Areas Digital Cartographic File**

The 1996 Census Forward Sortation Areas (FSAs) Digital Cartographic File depicts FSA boundaries derived from postal codes captured from the 1996 Census questionnaires. By analysing the postal codes reported by census households, a single FSA was assigned to each enumeration area (most often the FSA reported by the largest number of census households). FSA polygons were formed by grouping enumeration areas. Therefore, the Census based FSA boundaries respect enumeration area boundaries. The 1996 Census Forward Sortation Areas DCF is available as a standard package for Canada.

**92F0040XDE Enumeration Areas (EA) Digital Boundary File/Digital Cartographic File**

The Enumeration Areas Digital Cartographic File (DCF) is available for the first time. In 1991, only the Digital Boundary File was available. The EA DCFs are available as standard packages for Canada, the provinces and territories and Census Metropolitan Areas (CMA) and some Census Agglomerations (CA).

***Digital Street Files***

Geography Division maintains a street network database of Canada's large urban centres on an ongoing basis. While this database represents less than 1 % of Canada's land area, it accounts for 62% of Canada's population. Several

products originate from this database including very detailed Street Network Files, less detailed Skeletal Street Network Files, and the Block-face Data File.

#### **92F0024XDE Street Network Files (SNF)**

The Street Network Files (SNFs) are digital files representing the street network for most large urban centres in Canada. The files also contain other visible physical and cultural features (such as hydrography, railroads, pipelines) and attribute information (for example, street and hydrographic names and address ranges for streets with assigned addresses). Streets and addresses are updated to reflect the information collected on Census Day - May 14, 1996. In combination with the user's appropriate software, the Street Network Files are useful for route planning, delivery services and mapping. The SNFs are available as standard packages for Canada, all provinces but Prince Edward Island, and for Census Metropolitan Areas (CMA) and some Census Agglomerations (CA).

#### **92F0025XDE Skeletal Street Network Files (SSNF)**

The Skeletal Street Network Files (SSNF) are "thinned-out" Street Network Files consisting of cartographic reference features such as major streets (with street names but no address ranges) and some railway features used to define the census tract boundaries. The SSNFs are available as standard packages for Canada, Census Metropolitan Areas (CMA) and some Census Agglomerations (CA).

#### **92F0026XDB Block-Face Data File (BFDF)**

The Block-Face Data File (BFDF) contains 1996 Census population and dwelling counts for block-faces in urban centres covered by the Street Network Files (92F0024XDE). A block-face is generally one side of a city street between two consecutive intersections; it is also the smallest geographical unit available from Statistics Canada. The BFDF also links the block-face to all other levels of standard geography (enumeration areas and above) through geographic codes. The file includes street names with address ranges as well as co-ordinates for a point representing the approximate centre of each block-face. The BFDFs are available as standard packages for Canada and for large urban centres.

### ***Postal Code Products***

The postal code products described below use postal codes that are obtained regularly from Canada Post Corporation. Two other products listed above, Postal Code Counts (92F0086XCB) and 1996 Census Forward Sortation Areas Digital Cartographic File (93F0038XDE), are based on postal codes provided by respondents on census questionnaires.

#### **92F0027XDB 1996 Postal Code Conversion File (PCCF)**

The Postal Code Conversion File (PCCF) provides a link between the six-character postal code and the standard 1996 Census geographic areas (such as enumeration areas, municipalities, census tracts, etc.). It also provides the x,y co-ordinates for a point representing the approximate location of the postal code to support mapping. The PCCF is available as standard packages for Canada, the provinces and territories, and for large urban centres.

**92F0027UDB 1996 Postal Code Conversion File (PCCF) - Update**

The Postal Code Conversion File (PCCF) provides a link between the six-character postal code and the standard 1996 Census geographic areas (such as enumeration areas, municipalities, census tracts, etc.). It also provides the x,y co-ordinates for a point representing the approximate location of the postal code to support mapping. The PCCF is updated on a semi-annual basis. Updates released in July provide new postal codes as of January of the release year. Updates released in January provide new postal codes as of July of the previous year. Clients must purchase the Postal Code Conversion File (92F0027XDB) at the initial cost; then subsequent updated files may be purchased at the update rate. An additional discount on updates is given to PCCF update subscribers. The subscription will require that they pay in advance for at least one updated file per year until the new PCCF for the 2001 Census is released. The PCCF updates are available as standard packages for Canada and provinces and territories.

**92F0028XDB Postal Codes by Federal Ridings (1996 Representation Order) File**

The Postal Codes by Federal Ridings (1996 Representation Order) File (PCFRF) is a flat ASCII file which provides a link between the six character postal code and Canada's federal electoral districts (1996 Representation Order). A federal electoral district (FED) is any place or territorial area entitled to return a member of Parliament (MP) to serve in the House of Commons and is commonly referred to as a federal riding. The PCFRF is available as standard packages for Canada and for 5 regions - Atlantic Provinces, Quebec, Ontario, Prairie Provinces and Northwest Territories, and British Columbia and Yukon Territory.

**92F0028UDB Postal Codes by Federal Ridings (1996 Representation Order) File (PCFRF) - Update**

The Postal Codes by Federal Ridings (1996 Representation Order) File (PCFRF) is a flat ASCII file which provides a link between the six character postal code and Canada's federal electoral districts (1996 Representation Order). A federal electoral district (FED) is any place or territorial area entitled to return a member of Parliament (MP) to serve in the House of Commons and is commonly referred to as a federal riding. The PCFRF is updated on a semi-annual basis. Updates released in July provide new postal codes as of January of the release year. Updates released in January provide new postal codes as of July of the previous year. Clients must purchase the PCFRF (92F0028XDB) at the initial cost; then subsequent updated files may be purchased at the update rate. The PCFRF updates are available for Canada and for 5 regions - Atlantic Provinces, Quebec, Ontario, Prairie Provinces and Northwest Territories, and British Columbia and the Yukon Territory.

**Services****97C0005 Geocoding Service**

The Geocoding service allows users to define their own geographic areas of study (user defined areas or aggregations of standard census geographic areas) for census data tabulations. This custom geography is produced from an aggregation at the block-face level in large urban centres with Street Network File coverage, and at the enumeration level in small urban centres and rural areas. The user is thereby able to purchase census data for these custom areas. Cost estimates for this service will be provided based on the complexity of the request.

**97C0006 Geography Custom Services**

If the standard geography products do not satisfy a user's need, Geography Custom Services are available to produce non-standard geographic products by special request. Examples include alternative packaging of Digital Cartographic

Files, special data retrievals, manipulations or merges using any of the geography computer files (postal codes, attribute files, boundary files and Street Network Files). Cost estimates for this service will be provided based on the nature and complexity of the request.

**97C0007      Geography Custom Mapping**

Thematic maps and other custom maps may be produced as a special request. Cost estimates for this service will be provided based on the complexity of the request.

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